DOCUMENT RESUME

ED 062 304 SP 005 695

TITLE	Educational Research: Prospects and Priorities. Appendix 1 to Hearings on H. R. 3606 and Related Bills to Create A National Institute of Education Before the Select Subcommittee on Education.
INSTITUTION	Congress of the U.S., Washington, D.C. House Committee on Education and Labor.
PUB DATE	Jan 72
NOTE	193p.; Committee Print
AVAILABLE FROM	Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402
EDRS PRICE	MF-$0.65 HC-$6.58
DESCRIPTORS	*Educational Development; *Educational Needs; *Educational Objectives; *Educational Research; Essays; *Research Committees

ABSTRACT

During 1970-71, the Select Subcommittee on Education of the House Committee on Education and Labor held 8 days of hearings on the establishment of a National Institute of Education. This document is the first of three appendixes on the hearings and contains essays by scholars who have studied the aims of education, the issues of educational research, and ways of improving methods of teaching. Subjects covered include educational research and development in the sixties, classroom teachers and educational scholars, the translation of research and development into action, the measurement needs of education, individualized instruction, statewide assessment, social accounting in education, the role of the National Institute of Education, desegregation and integration in higher education, women in higher education, open education, planning for new students in higher education, mass education and the economic benefits of a college degree, the moral content of public education, definitions of education, and educating for the future. (Related documents SP 005 696 and SP 005 697 contain appendixes 2 and 3.) (MBM)

ED 070704

92d Congress
2d Session

COMMITTEE PRINT

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EDUCATIONAL RESEARCH: PROSPECTS AND PRIORITIES

APPENDIX 1 TO HEARINGS ON H.R. 3606 AND RELATED BILLS TO CREATE A NATIONAL INSTITUTE OF EDUCATION BEFORE THE SELECT SUBCOMMITTEE ON EDUCATION

COMMITTEE ON EDUCATION AND LABOR
HOUSE OF REPRESENTATIVES

JANUARY 1972

Printed for the use of the Committee on Education and Labor
CARL D. PERKINS, *Chairman*

U.S. GOVERNMENT PRINTING OFFICE
65-715 WASHINGTON : 1972

SP 005 695

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CONGRESS OF THE UNITED STATES,
Washington, D.C., January 25, 1972.

HON. CARL D. PERKINS,
Chairman, Committee on Education and Labor, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: On March 3, 1970, in his message to Congress on educational reform, President Nixon called for the creation of a National Institute of Education as a "focus for educational research and experimentation in the United States."

Declaring that "American education is in urgent need of reform" and that "we are not getting as much as we should out of the dollars we spend" on education, the President called for "a searching reexamination of our entire approach to learning".

As the President warned:

> We must stop pretending that we understand the mystery of the learning process, or that we are significantly applying science and technology to the techniques of teaching—when we spend less than one-half of 1 percent of our educational budget on research, compared with 5 percent of our health budget and 10 percent of defense.

Legislation proposing the establishment of a National Institute of Education was introduced in the 91st and 92d Congresses.

During 1970 and 1971, beginning with the introduction of the original bill on March 3, 1970, the Select Subcommittee on Education of the House Committee on Education and Labor held 8 days of hearings on the proposal and, in addition, visited several centers of educational research and development in the United States as well as in Great Britain, France, Norway, Poland, and the Soviet Union.

These three volumes of essays, "Educational Research: Prospects and Priorities," "Purpose and Process: Readings in Educational Research and Development," and "Alternative Futures in American Education," are thus part of what I believe to be the most careful consideration yet by a congressional subcommittee on the subject of research and development in education.

These essays have been commissioned by the Select Education Subcommittee from scholars who have studied the aims of education, the issues of educational research and ways of improving how we teach and learn.

As you know, Mr. Chairman, both the House of Representatives on November 4, 1971, and the Senate on August 6, 1971, passed with strong bipartisan support bills authorizing the creation of a National Institute of Education. At the present writing, therefore, the next step in the legislative process is action by a conference committee.

Hopefully, one of the principal achievements of the 92d Congress will be the establishment of a new entity which will contribute to strengthening research and development at every level in American education.

These essays are intended to contribute to a wider understanding of the National Institute of Education and some of the issues which it will address.

Sincerely,

John Brademas

Chairman, Select Subcommittee on Education.

EDUCATIONAL RESEARCH: PROSPECTS AND PRIORITIES

EDUCATIONAL RESEARCH & DEVELOPMENT IN THE SIXTIES: THE MIXED REPORT CARD

A background paper by FRANCIS S. CHASE

I. Prologue and Background

In the past decade research and development did not transform education as many had hoped; but it did introduce new approaches to change and give convincing demonstration of potential for continuing improvement. One who looks objectively upon the short and uncertain history of the educational research and development organizations funded by the Federal Government will discern ineptness in planning and management, bloated expectations punctured by failure, and frustrations enough to confound even the boldest risk takers. Yet the objective examiner will also note some solid accomplishments in spite of the obstacles; and, if sufficiently discerning, may perceive that power has been generated that promises much for the future.

The foregoing statements and the comments that follow are based on (1) information gathered on one or more visits to each of nine university-based research and development centers and twenty regional educational laboratories between December 1966 and June 1968; (2) continuing communication with all these organizations and repeated visits to six of them, in 1969 and 1970; (3) examination of annual reports, contractor's requests for funding, and other documents issued by the centers, laboratories, and other R&D organizations; (4) conversations with many persons who have had opportunities for close observation of the operations of educational research and development through serving on evaluative panels and otherwise; and (5) analysis of over seventy replies to an inquiry addressed at the end of February 1971 to persons believed to be unusually knowledgeable about the strengths and weaknesses of educational research and development.

My first opportunity to study the fledgling educational R&D organizations came toward the close of 1966. At that time the oldest of the university-based research and development centers, authorized in 1963 under the Cooperative Research Act, had been in existence between two and three years; and the regional educational laboratories, authorized by ESEA Title IV (an amendment to the Cooperative Research Act), were just getting started. Please note the dates of what I am tempted to call "an incredible chronology":

April 11, 1965—enactment of ESEA, including Title IV.
August, 1965—Guidelines issued for prospectuses.
October 15, 1965—prospectuses received.
February, 1966—the first contracts negotiated.

September, 1966—twenty laboratories under operational or developmental contracts.

November 18, 1966—a barrage of criticism led to the request for what became known as the "Chase Study".

On that day in November the then Secretary of HEW, John Gardner, and the Commissioner of Education, Harold Howe II, made it clear that they were in urgent need of trustworthy information to determine action with respect to the new laboratories which were being assailed so strongly by critics within and without the educational establishment. It seems scarcely credible that disillusionment could have set in so quickly as to shake the faith of the Secretary who earlier (when president of the Carnegie Corporation) had chaired the Presidential Task Force which recommended the establishment of such laboratories as large-scale research and development organizations. Yet the painful fact was that the existence of these new organizations was threatened before a majority of them became fully operational.

As I began my visits to the laboratories in December 1966, I found basis for the mounting criticism, but I found also basis for hope in the revitalization of educational practice through these new agencies. As visits to the laboratories continued, the Commissioner of Education asked that the university research and development centers be included so that the study would encompass all of the organizations in what was beginning to be known as the National Program of Educational Laboratories.

By mid-January 1967, and at intervals for the next year and a half, I reported to the Secretary, the Commissioner, and officers of the centers and laboratories on policies and practices, both within the Office of Education and among the laboratories, which seemed to jeopardize their usefulness as agencies for the improvement of education. At the same time I was calling attention to policies and operational processes which promised to add badly needed ingredients for the reform and strengthening of the education enterprise.

The judgments made in 1967–1968 have been reexamined in the light of subsequent events and further consideration of the nature of educational research and development as it is evolving in the United States and other countries. The following premises are either explicit or implicit in both my earlier and current generalizations:

1. The justification for the establishment and continuing support of these organizations is to be found in effective performance of functions which are either neglected or poorly performed by schools and school districts, colleges and universities, and State and Federal education offices. This requires the centers and laboratories to engage in activities which complement the activities normally engaged in by other education agencies.

2. The fact that the centers and laboratories are conceived as educational research and development organizations places them under obligation to engage in sets of operations which eventuate in products and processes effectively adapted to the achievement of specified educational objectives or the solution of important problems.

3. The focus of operations will be research designed to facilitate the attainment of specified goals and/or development which draws on research to inform decisions and evaluate products. In research *and* de-

velopment, the discovery of knowledge is pursued not as an end in itself but as a means toward achievement of other purposes; and development is regarded as successful only to the extent that specified performance criteria are met.

4. Effective research and development in education as in other fields requires teams of specialists with complementary competencies working over considerable periods of time under conditions which reward team productivity and quality control.

5. The autonomy requisite to productive research and development can be reconciled with accountability for the use of public funds and other resources only through the establishment of processes of review and evaluation which provide fair bases for judging performance without impeding it.

In a paper prepared nearly two years ago, I attempted to describe some of the conditions essential to the effective operation of educational research and development organizations. Among the conditions which I stressed were an orderly increase in funding, an immediate stepping up of efforts to train research and development personnel for education, and other conditions necessary to stability, independence and accountability. It was my opinion then, and it is my opinion now, that we need to move immediately to establish a sponsoring agency in the Federal government that will command the attention of the Executive Offices and the Congress, and provide assurance that research and development operations in education are will conceived, soundly operated, and objectively evaluated. A National Institute of Education, set up along the lines proposed in legislation now pending before the Congress and with funding increasing at the rate of something like 50 per cent a year until the billion dollar mark is passed, would be a giant step toward establishing the essential conditions for realizing the educational potential of research and development.

It is important that R&D organizations be directed to establishing conditions and means for vigorous and effective functioning of the institutions and agencies of education, and not merely to the achievement of short range goals. Generally the most lasting effects are achieved over time through systematic analysis and problem-solving which lead to a clarification of objectives and a painstaking adaptation of means to ends. Over-emphasis on instant products is a disservice to sound research and development: yet the pressure for visible products which are ready to be marketed and put into widespread use is a factor that cannot be ignored by R and D organizations. The pressure comes from practicing school people who want something to ease their problems *now* and from parents who want their children to have experiences which are much better adapted to their needs than those which schools generally now are providing. It comes also from legislators who need something they can point to as justifying the expenditure of public funds; and it comes from officials in the Executive branch, the Bureau of the Budget, and elsewhere, who feel responsibility both for advancement of the public welfare and for prudential use of tax revenues.

I take education to be a process through which the powers of the individual are developed and used for the enhancement of self and others. We talk glibly about the development of the full potential of all individuals in our society; yet society itself through its

institutions and values leads members of some groups to discount their potential and to perceive small opportunity for the exercise of developed powers. We can identify some of the grosser factors which hamper development of the powers such as poor nutrition, sensory deprivation, and assignment of inferior social status. We have a dawning understanding of the positive factors which help an individual to attain a just perception of himself and to acquire some ability to cope with environmental factors; but we are not sure what combinations of changes in environments for learning and living are required to provide substantial equality of educational opportunity for those growing up in poverty, accentuated often by social stigmas attached to departures from the national norms in language, culture, or appearance.

What hope is there that research and development operations can contribute to the reform and continuing improvement of education? Or to put the matter another way: What are the characteristics of research and development operations on which one can base reasonable hopes? I shall discuss briefly several which seem important to me and which seem to be more fully exemplified in the educational research and development operations than in educational practice generally.

One characteristic is a systematic attempt to work out cycles of need assessment, specifications of objectives, analysis of alternative strategies and treatments, leading to choices among alternatives, construction of partial or tentative systems or prototypes on the basis of testing in clinical and experimental situations, installation and testing under field conditions in a variety of situations, and continuing evaluation and refinement. No other educational institutions in our society have committed themselves so fully to this recycling of processes until the intended effects are achieved to a satisfactory degree. It is perhaps this characteristic which, although not yet fully realized, most clearly sets aside the operations of these research and development agencies from typical operations in the field of education; and it is this which represents their greatest potential and promise for the improvement of education, not merely for the so-called disadvantaged but for fuller self-realization and full contributions to the human and non-human environment for all individuals in our society.

Our related characteristic is attention to all the major elements in learning environments. The approach is one of creating systems which have as components instructional materials and media, physical settings, and the development of relevant behaviors for teachers and other school personnel, family groups, and community volunteers. The process becomes one in which all are teachers and all are learners, with frequent opportunities for transposition of roles.

A third characteristic is the linking of many organizations and institutions in the implementation of programs. Not only is a greater attention being given to the contributions which can be made by Departments of Education, school districts, and educational associations of many kinds; but more effort is being expended to involve parents, civic groups, industries, ethnic leaderships, social agencies, and volunteers from the communities concerned.

Another distinguishing characteristic of many laboratory and center programs is a strong accentuation of the positive elements in the

social and cultural environments of those populations which are designated as disadvantaged. The values and strengths which are associated with being a black in America or a member of a non-English speaking group in an Anglo culture or an Indian in a white man's civilization become the starting points for finding oneself and the building of relations to others. I have seen numerous examples of this in programs now under development in several places. The approaches used obviate the danger of making disadvantaged populations simply the subjects of interventions by others, and recognize that fruitful transactions with the dominant middle class culture become possible only on a basis of the awareness of what the submerged groups can contribute to the enrichment of that culture. To this end a studied attempt is made to enable members of the population which are the targets of the intervention to become contributors to the architecture of intervention. Increasingly the residents of inner-city ghettos, the residents of areas distant from the major centers of population, and members of groups whose languages and/or cultures differ significantly from those of the majority are being involved in helping to decide what they want for their children and for themselves and how they can be helped to widen the choices open to them.

We have learned to distrust the assumption that improvement in education will result from piecemeal reforms such as introducing new media of instruction, revising instructional materials, regrouping learners, organizing teachers into teams, or adopting programed instruction. The history of innovation shows that any substantial gain in effectiveness depends on many factors operating to the common effect. Well conceived educational research and development operations involve helping school personnel acquire needed skills and competence in new roles as well as developing improved instructional materials and management systems. Moreover it is recognized that effective use of a new product or subsystem may require carefully worked out adaptations both in the new elements, and in the school, communities, and other systems affected.

I have been speaking of research and development as a function or set of operations performed by organizations established and maintained for the purpose of devising and perfecting alternative strategies, products, and systems to facalitate the achievement of specified objectives. This is true to the extent that he characteristics which I have been describing find their fullest expression in such organizations. Let no one imagine, however, that the urgently needed improvements in education will result simply from having one type of organization design and develop products for use in schools, colleges, and other educational agencies. The adaptation of educational institutions to the needs of our times requires both incremental and reconstructive changes. These changes cannot produce the desired effects unless there exists within the adopting agencies a predisposing set of conditions.

The success of innovations is increased when:

(1) a preceding analysis by members of the adopting agency has identified poorly achieved objectives, low performance of functions to which the agency is committeed, and/or newly identified needs for education which require attention;

(2) the effects which the adopting organization wishes to achieve have been specified as explicitly as possible;

(3) the choice of a particular innovation or set of innovations has been made after a careful examination of available alternatives;

(4) personnel in the adopting organization are given help in making the changes in their own roles and behaviors which are required to gain the full benefits of innovation;

(5) the clientele to be served, including students, parents, and others in the community affected are involved in the definition of needs and decisions as to the nature of the changes desired.

The research and development function will become institutionalized in education only when schools, colleges, and educational agencies generally incorporate in their own operations what I have called the "effects orientation" and use appropriate problem-solving processes to specify and achieve the desired outcomes. The first requirement is that all education agencies engage constantly in a searching assessment of the needs for education of those whom they seek to serve. The assessment must be conducted in such a way as to move from symptoms such as dropouts, poor school attendance, and low academic achievement to the underlying causes in the inappropriateness or inadequacy of educational treatments. A second requirement is that the assessment of needs lead to the identification of specific objectives or effects which are perceived as important by those to be educated as well as by educational personnel. The third requirement is a vigorous search for strategies and instrumentalities which seem well adapted to production of the desired effects. These aspects of probing and problem solving need to go on in every district, in every school, in every community educational agency, and in every institution of higher learning. Assistance in the various phases of this "system improving" operation, hopefully will be forthcoming from state education agencies, from regional service centers, from experimental projects, and from the organizations specialized to research and development in education. The latter organizations have a central responsibility not only for providing tested products and systems, but also for assisting educational personnel to incorporate in their own agencies the kinds of processes and mechanisms essential to continuing revitalization.

It must be understood that the characteristics I have been describing are nowhere fully realized; but they do underlie the operative values in the more successful educational research and development organizations. These incipient characteristics will emerge more clearly when encouraged by the commitment of needed additional resources to those operations that demonstrate them most fully.

The purpose of this section has been to expose the perspectives from which my own views of educational research and development are derived. The next section offers a summary of views of others who occupy key posts for observation of R&D operations in education; and the third (and final) section presents generalizations drawn from a reexamination of the past, present, and hoped-for future.

II. Summary of Informed Opinion

In order to gain the current views of a number of participants in and observers of research and development operations in education, inquiries were addressed in late February 1971 to 120 persons who have followed closely the course of educational research and development. Of these 50 are employed by R&D organizations: 10 directors of educational research and development centers, 14 directors of regional educational laboratories, and 26 additional staff members of centers and laboratories. Identical questions were addressed to 70 persons not on R&D staffs: 11 chief state school officers, 29 local school administrators, 8 university deans, 10 professors, and 12 leaders in other organizations. All of those queried have had unusual opportunity to study educational research and development operations, with the exception of the 29 local administrators, most of whom were selected at random from education directories.

The inquiry form raised five questions:

1. What do you regard as the chief achievements of educational R&D?
2. What have been the chief obstacles to effective operations?
3. What steps are most vital to the increased effectiveness of educational R&D?
4. What are the most valuable lessons to be learned from our experience up to this time with research and development in education?
5. What is your general assessment of the major strengths and weaknesses of educational research and development at the present time?

To facilitate replies, the first three questions were followed by checklists of seven or eight factors which are frequently cited as contributing to the relative effectiveness or ineffectiveness of research and development in education. Space was given after each of these questions for added items and for free-ranging comments. Correspondents were asked to double-check the two or three items considered crucial. Questions 4 and 5 were followed only by a blank for the respondents' use. (A copy of the inquiry form and covering letter are appended to this report.)

Seventy-eight replies were received and analyzed to determine the preponderant views and to reveal significant divergencies among and within the several categories of respondents. When the returns were analyzed in mid-March, replies had been received from only 11 of 29 local school administrators queried. This in itself may be an indication that only a minority of local school people have felt any impact from R&D operations. Completed replies were received from over 70 per cent of all other persons addressed, and in no other category did the returns fall as low as 50 per cent. Of the 78 respondents, 73 completed the checklists for the first three questions and the remaining five ignored the checklists but offered comments. Of the 73 respondents completing the checklists, 35 are members of center and laboratory

staffs and 38 are observers not employed by these organizations. The latter group includes 8 chief state school officers, 11 local administrators, 6 university deans, 8 professors, and 5 who are recognized as authorities on the application of research and development to education. Analysis revealed some differences of opinion among observers within and without R&D organizations but no clear differences among the several categories of "internal" and "external" respondents.

The following pages give sampling of the comments of respondents in answer to each of the five questions. For the first three questions, tabulations of the checklist responses are also provided. The tables show the percentages of those within and without educational R&D organizations rating each checklist item as *crucial* or *important*. It may be noted that in no case did the items at the top of the checklist elicit the highest number or percentage of responses.

MAJOR ACHIEVEMENTS CITED

Respondents were asked to indicate their views of the relative importance of seven suggested achievements by checking once all items regarded as important, and twice those regarded as crucial. Inasmuch as no major differences appeared among the responses from center directors, center staff members, laboratory directors, and laboratory staff members, all of these are grouped together in the 35 responses from R&D staff members. Anaiysis also showed no important differences in the responses of school administrators and other respondents who are not members of laboratory or center staffs. In the tabulation, therefore, comparison is made between the responses from those employed by R&D organizations and those not so employed. (See Table I.)

TABLE I.—*Responses to Checklist on Chief Achievements of Educational R. & D. Showing Percentages Rating Each Item as Crucial and Important*

Items	35 R. & D. staff members			38 other respondents		
	Crucial	Important	Combined	Crucial	Important	Combined
Speeding up of educational innovation	34	43	77	16	61	77
The improvement of evaluative techniques	17	60	77	37	39	76
The development of improved instructional systems	60	34	94	37	34	71
Improved processes of planning and problem solving	37	54	91	26	37	63
The use of systems approaches and feedback loops	9	54	63	13	42	55
Improved processes for institutional self-study	14	17	31	13	39	52
Increased collaboration among educational agencies	20	49	69	16	37	53

Comments.—It may be noted that four items are rated as either crucial or important by upward of 77 per cent of the directors and other staff members of R&D organizations while the remaining three items receive much lower ratings. The same four items receive the highest rating by informed observers who are not employed by research and development centers or laboratories. The most striking difference among respondents within and without R&D organizations is that 60 per cent of the R&D employees regard improved instructional systems as a crucial contribution while only 37 per cent of the outside observers give this the rating of crucial. Other items rated as more crucial by R&D employees than by outside observers include contributions to planning and problem-solving, and the speeding up of educational innovation. On the other hand, a higher percentage of external than internal observers regard the improvement of evaluative techniques as a crucial contribution.

Items added by more than one respondent to the checklist of major achievements include the following (with figures in parentheses showing number of respondents listing):

Contributions to knowledge or understanding of education, curriculum, learning, or change processes. (8)

Refinement of research, development, and implementation strategies. (2)

The use of interdisciplinary teams. (2)

The development of delivery systems for introduction of educational innovations. (2)

Training of personnel in research and development operations. (2)

Among the items added by a single respondent from R&D staffs are:

Parsimonious use of national resources to improve education.

The creation of R&D institutions capable of producing significant research and validated products.

The development, testing, and installation of improved educational management systems.

Converting educational research into actionable, validated products.

Development of a rigorous process for building, testing, and implementing educational products.

Development of delivery systems for introduction of innovations.

Among replies from those not on the staffs of centers and laboratories the following items appear:

Establishing agencies with the prime mission of R&D.

Increased emphasis on, and utilization of basic research.

Improved understanding of what R&D is all about.

Focus upon the importance of creativity in education.

Emergence of a substantial program of policy- or practice-centered research in education.

Demonstration that educational problems can be attacked vigorously, systematically, and authoritatively.

Providing opportunities for many talented, creative persons to work in efforts to improve education.

Pointing out the meager research base available and used in educational decision making.

Dissemination of useful research findings to teachers and others.

Two alert local school administrators mention accountability—one noting the "sensitization of educators to the research ethic of accountability, its rationale and techniques," and the other listing "development of accountability systems, cost-effective learning systems, and performance-based educational assessment techniques."

Several respondents offer comments which are usually concise, and often illuminating. In response to the question regarding the chief achievements one center director says "the chief achievement is the bold new effort to make educational research more relevant, to help it break out of its traditional limited mode." Another center director, who is also a distinguished psychologist, believes that the significant contributions up to the present time appear to be:

1. The mobilization of a substantial portion of the scholarly and managerial resources of the nation.

2. The formulation and validation of sophisticated development, diffusion, and research strategies which are now becoming part of the accepted tools for educational improvement throughout the educational community.

3. A firmer knowledge base related to organization, curriculum, instruction, community, and other resources of educational systems.

4. Tested curriculum materials and instructional procedures, particularly at the elementary school level, that are now being moved into the schools.

A third director notes that "the use of systems approaches, improved processes for institutional self-study and regeneration, and increased collaboration among educational agencies are all extremely important potential outcomes of educational R&D"; but he adds "these outcomes are only beginning to emerge, and their future development is yet to be determined". In similar vein, the author of the first comment quoted in this section acknowledges that the job of making educational research relevant is scarcely begun, but he expresses confidence that the new R&D effort can at long last begin to help to remedy a major weakness of education which he identifies as lack of a "solid, cumulative research base".

A member of a center staff notes that the items listed on the checklist have been achieved "to some extent as a result of new institutions with the new kinds of personnel, but the actual achievements of such organizations are yet to come." Another discerning member of a center staff sees the gains so far as improving instruction is concerned "as mainly in clarifying the requirements for significant, wide-spread improvements in education and in the development of R&D technologies that, if put to work effectively, could make great gains." Another thinks that the big achievement is the introduction of a programmatic approach to educational innovation, involving responsibility for carrying through from the initial ideas to "installation and evaluation in a context large enough to provide a nurturing environment for new processes."

The comments of laboratory directors and staff tends to overlap and reinforce those from the centers. One director calls "the introduction and use of a systematic research and development approach to the improvement of education" the most crucial of all achievements and stresses the importance of establishing "a systematic means of improving education as opposed to segmented approaches or emphasis upon single items such as 'speeding up educational innovation'". A laboratory staff member puts stress on the *process* rather than the *product* contributions of educational R&D and expresses the belief that in the long run laboratories and centers may contribute more to educational practice and improvement "through providing models of HOW rather than specific products." Another respondent, a key officer in one of the laboratories, feels, however, that "educational R&D provides validated products that are fully ready for operational use" and adds that "earlier and less rigorous development efforts almost never conducted vigorous evaluation or provided products that could be used without major additional efforts by the schools."

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OBSTACLES TO EFFECTIVE OPERATION

As shown by Table II, 100 percent of the 35 R&D staff members regard unrealistic expectations of immediate results as a crucial or important obstacle to effective operation of research and development organizations; and 76 percent of the 38 other respondents also rate this factor as an important or crucial obstacle to effective operations. Other differences of the ratings of the listed items are shown in the table and highlighted in the comments beneath the table. Several respondents list other items which they regard as crucial. Among the additions from R&D personnel are:

Inability to conceptualize a total system of research and development and make it operational.

Refusal or inability of R&D operations to adopt a programmatic approach.

Inappropriate concepts of educational R&D processes.

Inappropriate conceptions of the relationship between research and development.

Inability or unwillingness of key personnel to utilize existing knowledge, experience, techniques, and/or methods and procedures in the management of R&D operations.

Lack of commitment and support from the Congress and the Executive branch and lack of coordinated support within the various branches of OE.

Letting technological means determine ends, rather than vice versa.

Lack of expertise re: dissemination and utilization problems.

Lack of clear and consistent definition of Federal expectations, requirements, and support.

Slowness in adapting military and industrial operations to the unique needs of educational research and development.

Inadequacy of methodology in educational development.

TABLE II.—*Responses to Checklist on Chief Obstacles to Effective Operations Showing Percentages Rating Each Item as Crucial and Important*

Items	35 R. & D. staff members			38 other respondents		
	Crucial	Important	Combined	Crucial	Important	Combined
Meager knowledge of factors affecting learning	9	31	40	18	32	50
Inadequacy of methodology in educational research	9	37	46	5	42	47
Resistance to change by educational personnel	20	37	57	11	37	48
Inadequate funding	34	40	74	37	34	71
Lack of experience in the management of R. & D. operations	46	40	86	18	29	47
Shortage of personnel specialized in R. & D. operations	34	46	80	37	21	58
Unrealistic expectations of immediate results	57	43	100	37	39	76
Jealousy among educational institutions	20	20	40	0	21	21

Comments.—Four of the eight items on this list receive significantly higher ratings than the remaining four. Unrealistic expectations of immediate results is considered a crucial obstacle by 57 per cent of staff members of R&D organizations and as important by the remaining 43 per cent. This also is regarded as chief obstacle by outside observers, although the percentages regarding it as crucial and important were 37 and 39 per cent, respectively. The remaining items regarded as crucial obstacles by one third or more of both internal and external respondents are shortage of personnel specialized in R&D operations, and inadequate funding. Observers not on the staffs of R&D organizations tend to give a slightly higher rating to inadequate funding and a significantly lower rating to lack of experienced management than do R&D staff members.

Items added by those not on the staff of R&D organizations include the following:

Completition between R&D interests and commercial interests. search programs.

Insecurity of funding for long range programs.

Emphasis on production of packages rather than the treatment of education as a process.

Lack of an effective system or model for educational development and dissemination.

Competition between R&D interests and commercial interests.

The local control of education which makes it difficult to put educational R&D into practice.

Inadequate attention to dissemination and diffusion.

Inadequate information systems to support R&D.

Lack of commitment to the research modus operandi.

Inexplicit, poorly conceived student outcomes statements.

Lack of programmatic approach.

Among the more illuminating comments made by center directors and staff members on obstacles are the following, which seem worth quoting at some length:

In the long run, the major obstacle to effective operations of R&D will be the continued inability or unwillingness of R&D personnel to see their own efforts as only part of a total system. Curriculum (instructional) materials, teacher training, organizational change, and methods of evaluation must somehow be brought into a compatible system if R&D is to have a major impact on the educational system.

Several factors have hindered us. We are new at it, and don't fully understand the process. We are borrowing concepts and procedures from engineering and industry that don't always fit. We are bedeviled with an incessant, and mindless scrutiny—pulling up the roots to see if the plant is growing—that take away scarce energy needed for *creative* work. We have been asked to formulate broad, integrated and expanding programs during a period of financial uncertainty and with dwindling resources.

The greatest obstacle to the orderly utilization of the human and material resources in colleges and universities was first the levels of support in 1967, and in 1970 the actual reduction of support whereby even the strongest R&D centers received no increase in funds from 1967–1970 and yet in 1971 not a single new center was started. The chief obstacle to the orderly development of laboratories was the short-term funding along with insufficient skilled leadership from OE to get 20 laboratories off to a good start in 1966–1967.

One of the greatest difficulties in effectively carrying out R&D programs rests with the lack of a substantive theoretical structure that would permit the adequate design of instructional systems. We seem to spend a great deal of time in developing things with little rationale as to why.

The whole R&D program since 1965 seemed to have the pitch of immediacy—which is not possible in changing so complex an operation as is the educational system. Few R&D efforts have been addressed to the utilization of effective means of causing change to occur or of getting change to occur among the slow-to-adapt. Intervention into the educational system has been slow and spotty in degree. The dissemination attempts are, to be kind, awkward, primarily due to lack of utilization of means for so doing already available to R&D. The educational community already has established vehicles of dissemination—and the creation of new activities for such purposes overburdens the used of R&D. The bottleneck is obvious.

Laboratory directors and staff members add the following obstacles:

Shortage of R&D management and professional personnel who actually have experience in development, evaluation, dissemination, and utilization is more critical than funding, "research knowledge", or research methodology.

Product development is a specialized skill and good "product developers" are practically non-existent. Management has been inferior. It is primarily

given to former "educators" and "administrators" whose concepts and skills in the management process are at best ineffective and in most cases self-defeating or destructive to personnel.

Educators had no good models for R&D. These had to be constructed from military and industrial sources. Since the fit was not good, a great amount of hammering out of the concepts was needed. Previous educational research was almost of no value, and at times was detrimental. The general notion that research knowledge was abundant and that labs simply needed to apply it to solutions was unworkable. Not enough knowledge existed. No large scale R&D effort in education had existed to produce the management experience needed.

Failure to systematically train staff members for maximum effectiveness and lack of management techniques.

Lack of experience in management of R&D operations has hampered effective implementation of innovative projects.

My major impression of the educational R&D effort is its fragmentation. There seem to be great numbers of individual efforts, each devoted to some very small problem or question; each pursued in great detail; each purporting to have examined precedence or experiences. It seems to me that effective management and planning of R&D efforts could reduce this vast duplicative and repetitive operation and release resources into more productive, still undeveloped areas of inquiry.

Among the more cogent comments regarding obstacles made by those who are not members of center or laboratory staffs are these:

I think we may overplay the notion of the resistance of educational personnel to innovation. We have also underestimated the magnitude of R&D both in complexity and the nature of the setting in which it should go forward. We might go further in the future if we could link sources of ideas more productively with private sector R&D know-how and resources.

The greatest obstacle is the lack of an effective system or model for translating R&D outcomes into practice. It is not enough to "develop" and "disseminate" according to current models. For example, good as the ERIC system is, how can one expect a school principal, say, to find in it what he can use, or know how to use it? The model I would envisage would incorporate some system for bringing R&D outcomes (as appropriately packaged and developed) into the principal's office, or into the classrooms of teacher training institutions.

Many fragmented approaches with R&D funds being widely dispersed without any overall conception of the emphasis or integrated approach that should be taken. Giving out small sums to thousands of individual professors and researchers certainly does not lead to an integrated R&D effort. I would much rather see a limited number of well-financed attacks on well-defined problems. Implementation has to take place through the independent action of 27,000 school districts. Most of these are unwilling to change traditional ways or are caught up in the politics of trying to satisfy very diverse constituencies who generally do not understand or seek change based on research results.

A severe shortage of good administrators who understand the R&D process, but in addition, there are limited numbers of individuals who feel sufficiently committed to devote the time and energy needed to operationalize needed innovations (one big problem is, of course, the inappropriate kind of reward structures used in some centers.)

The pattern of supplying more funds than can be adequately used early in a new program and then decreasing funds for the program has, I believe, created serious problems in many research and development programs. Often as the programs mature and develop concrete plans, funds available to implement those plans are decreased and R&D personnel have to spend too much of their valuable psychic energy and time in defending their past performance and making a case for increased funds. Programs which are funded early in new R&D efforts often receive more support than those which may be conceptualized more adequately but which may be funded at a later date. Thus, programs which are more thoroughly conceptualized and planned may have no prospect of receiving an adequate budget which is commensurate with their plans, while early-bird proposals, which may have been very poorly conceptualized, may receive more budget than is warranted, given the competing proposals which come along later.

There has been an abundance of personnel trained in classical research methodology, but certainly a major shortage of personnel trained to perform roles such as evaluation, development, and diffusion.

On the one hand, practitioners look for simple, instant, infallible answers to complex problems which may leave no solution. On the other hand, researchers continue to be almost unaware of the process by which educational decisions are made. Misunderstanding of roles and differences of expectations create mistrust, confusion and frustration among those who must work closely together for effective R&D operations.

The tools for educational research are both inadequate as systems analysis instruments and also as diagnostic instruments. Their scaling techniques are thirty years behind the current knowledge. Researchers also need to know how to work in the school environment. They come equipped with laboratory techniques when they need more general abilities in the area of the art of the application.

Funding of educational research is inadequate in at least three ways: (1) disproportionate reliance on federal sources, direct and state-administered; (2) inopportune timing of funding decisions, often precluding adequate planning, staffing and implementation of well designed programs and evaluations; (3) ridiculously low portion (.31%) of the total education budget—compared with industry (3%), health (5%), and national defense (10%). Concerning inadequate funding, the reduction of proposed budgets below what was really needed and the late awarding of federal grants have hampered project implementation. Opportunities to staff projects with the most capable personnel and valuable lead time in project development have been lost because of reduced budgets and late funding.

Lack of concern with the whole social context in which education goes on, and domination of research by psychologists interested in the psychology of learning—a *minor field* according to which to improve the schools. (Social motivation; self-confidence, hope—these are far more important than schedules of reinforcement.)

STEPS TO INCREASE EFFECTIVENESS

Table III reveals the percentages of respondents in each group rating each of the seven checklist items as either crucial or important to increased effectiveness. The last item on the checklist was "better understanding of the nature of educational R&D by ———." This blank was filled in by many respondents with such terms as all "funding agencies," "consumers," and "educational practitioners." Respondents using a phrase such as "the entire educational community" or the equivalent numbered 37; better understanding by the Congress was called for specifically by 17 respondents; better understanding by HEW and OE or funding agencies by 15; better understanding by the general public by 11; and better understanding by university and college personnel by 5.

One respondent took the blank to refer to the means of increasing understanding and wrote, "Better understanding of the nature of educational R&D by encouraging a number of outstanding universites to devote extended time to intellectualizing the entire R&D process."

TABLE III.—*Responses to Checklist on Steps Vital to Increased Effectiveness Showing Percentages Rating Each Item as Crucial and Important*

Items	35 R. & D. staff members			38 other respondents		
	Crucial	Important	Combined	Crucial	Important	Combined
Better arrangements for national management of R. & D	20	54	74	8	21	29
Better provisions for the evaluation of R. & D. performance	11	57	68	8	47	55
Closer control by Federal authorities on R. & D. operations	3	9	12	0	3	3
A significant increase in Federal support	57	31	88	39	39	78
Better provisions for training R. & D. personnel	14	46	60	21	39	60
Greater autonomy for the several R. & D. organizations	11	20	31	16	26	42
Better understanding of the nature of educational R. & D	46	49	95	26	26	52

Comments.—Fifty-seven per cent of those on the staffs of R&D centers and laboratories regard a significant increase in Federal support as vital to increased effectiveness. This is in contrast to only 34 per cent who see inadequate funding as a crucial obstacle to effectiveness. The explanation of this apparent contradiction may be that many of those engaged in R&D operations fee' 'hat inadequate funding has not been the most critical obstacle up to now but believe that effective operations cannot be continued without a significant increase in support for the future. Better understanding of the nature of educational R&D by various groups responsible for decisions affecting it is regarded as a crucial step by 46 per cent of laboratory staff members and 24 per cent of external observers. None of the remaining five items is seen as a crucial step toward greater effectiveness by more than 20 per cent of R&D staff members or 21 per cent of outside observers. However, 74 per cent of R&D staff members regard better arrangements for national management as either important or crucial, 68 per cent give either important or crucial ratings to better provisions for the evaluation of R&D performance, and 60 per cent of both groups of respondents regard better provisions for training R&D personnel as either crucial or important.

A number of respondents add one, and sometimes two items which they consider crucial to the increased effectiveness of educational research and development. Among the new items are several with regard to national management or funding:

Management and funding that enables better continuity in planning by R&D organizations.

Redirection of major Federal funding emphasis from frenetic innovations and political-social gambits toward a massive interinstitutional attack on the vast ignorance within which the educational enterprise is characteristically conducted.

Establishment of the National Institute of Education or some similar agency.

Greater responsibility on the part of the Federal Government for placing products and knowledge in the hands of users.

Active support from USOE for implementing proven products of R&D operations.

Overt support for building a national system for educational development while retaining political decentralization.

Better arrangements for national support of educational R&D.

Long-range plans for predicted needs as well as for short-term needs.

Other new items relate primarily to the operations of the centers and laboratories:

Adoption of rigorous performance standards by R&D operations as well as by monitoring agencies.

Greater involvement in changing attitudes of local superintendents, School Board members, and principals.

A better model or system for on-site development and demonstration of R&D outcomes.

Utilization of methods of dissemination via established vehicles.

More and better cooperation among R&D agencies and individuals.

Greater opportunities and support for dissemination, installation, and quality control techniques.

Early involvement in R&D processes of commercial publishers.

Tighter control on testing of products in the field.

Continuity and consistency in carrying through with plans inaugurated.

Among the more cogent comments in the free responses of respondents to the question regarding the steps most vital to the increased effectiveness of educational research and development are several bearing on national management:

Good national management under a well led NIE would be good in part because it would stimulate greater R&D group autonomy. The latter is needed in order to fulfill the standards of programmatic integrity, continuity, organizational evolution, and the ramification of experience into invention and knowledge. Better national management is needed in order to prevent trifling surveillance, constant revisionism, but also to harness and correlate efforts. Both require a significant increase in Federal support.

Better arrangement for national planning and implementation of R&D, perhaps the idea of the National Institute of Education will do this.

The most important steps as I see them at this juncture are:

(1) A better and stabler definition from the national standpoint of the key educative problems and issues that need major R&D effort—the present definition is ad hoc, shifting and shallow.

(2) A major, continuing (5–10 year) commitment to the institutions and agencies in which the granting agency has faith—with more thorough, continuing review and evaluation procedures that help rather than hinder the work.

(3) A wide sharing of those policies, procedures, and programs of *educational* R&D that clearly work.

Congress should agree to a set of educational priorities and to a specific minimum level of support for work on them. OE (or whatever) should invite *and support* a limited number of contractors to specify two to four of the most promising alternative approaches to solving these problems. Dependent upon the characer of the approaches, existing R&D resources should be informed regarding the problems and the alternatives, and be invited to state why they would like to work upon one or more of those problems and what resources they have. (I think some consideration should be given to using federal support for building resources in regions of high populations but low R&D resources.) An appropriate number of those centers or universities should be selected *and supported* to develop comprehensive program proposals. A limited number should be selected, then those centers should be assured of minimal support for a five to ten year period for a concerted, continuing effort.

It is important to have increased Federal support (the states or local agencies cannot do it), but even more important to be able to plan a line of attack and stick with it with the persistence needed to solve the basic problems. Better understandings of the processes will help create more appropriate funding, evaluation, and management of R&D as well as make for more realistic expectations of the results—especially timing.

The provision of adequate support and autonomy for agencies to pursue long-range, systematic problem-solving efforts. When the agencies are constantly concerned about the need to look good and productive in next year's site visit, they can be deterred from the crucial, difficult, and often lack-luster complex problems. Educational problems which have existed for so long in our inner city schools must be solved and we must expend whatever time and resources are required to solve these problems. We must provide those who would take on this difficult responsibility with the freedom to fail often and thereby to reject solution strategies which may merit testing but ultimately need to be rejected. I think progress can come only through the testing and rejecting of false hypotheses. R&D agencies must be free to perform such vital hypothesis testing.

The development of comprehensive long-range plans for *national* R&D efforts in education with: (a) more limited and sequenced objectives; (b) specification of the scope of activities and responsibilities of each of the public and private agencies and institutions involved so that efforts are not overlapping and results are more likely to be cumulative; and (c) involvement of representatives of institutions and agencies in (b) in the decisions.

Move as rapidly as possible to get NIE established and operating with the labs and centers playing a major role in the programmatic R&D efforts to be directed by that organization.

Uniform and specific criteria for evaluation of laboratories are sorely needed. Regardless of level of funding, a basis for planning and criteria for laboratory self-assessment are not optimally provided for on a one-year-only basis. Also an important deterrent to optimum planning and execution is the fiscal year basis which does not match the academic year. Field action research must follow the academic year.

Other comments deal with diffussion or implementation:

A major, omitted linkage is the diffusion and dissemination of the products of research and development into educational uses and adequate feedback from these operational uses. The processes of change are far more complex than the purchase and installation of products; research and development must focus on these processes as well as products.

A more direct relationship between R&D operations and public schools as a whole [is needed]. Also an increased involvement in R&D or people who have a strong background in school operations management, and *teaching*.

Most teachers and administrators do not have the faintest idea of what educational R&D is. USOE should establish a list of proven educational products and innovations and take active steps to encourage their use by schools. For example, this list could be distributed to Title I project officers, Title III directors, EDP project directors, etc.

If research and development activities in education are to achieve maximum impact in improving learning experiences for pupils, then teachers, principals, and others must be helped to understand the nature of research and development and must be induced to apply (or field test) the latest research findings disseminated to them.

Educational R&D seriously needs more credibility at the classroom level. Relatively untrained to know what to expect of R&D, the classroom teacher does not see it as supportive. Much of what the teacher sees as R&D effort may, in fact, be threatening rather than supportive or helpful. At best its products are likely to mean another round of "in-service" activity, much of which appears disjointed and capricious to the teacher.

Provide for upgrading research producing and consuming skills of all public school personnel by (a) encouraging an R&D orientation in pre-service training and (b) offering research and related in-service credit courses on a continuing, possibly mandatory, basis.

The important ingredient lacking in increasing the effectiveness of educational R&D is the attention to implementation. Somehow researchers tend to think their responsibility ends when an article is published; in fact, it has barely begun. For the research to be socially justified it should have impact on the real problems and there is a great need for a class of professionals which is devoted to the translation of research into action at the school level.

Develop a design for nationwide research, with replication, calculated to overcome, insofar as possible, the above-documented lack of knowledge through cooperation of public schools, universities, governmental agencies, and other sectors as appropriate.

LESSONS LEARNED FROM R&D EXPERIENCE

The question as to what are the most valuable lessons learned from our experience up to this time with research and development in education brought reinforcement of themes sounded in response to earlier questions. For example, one chief state school officer notes that you cannot conduct a comprehensive program in R&D without adequate human and physical resources, and another says that the training programs have not been adequate to produce sufficient number of qualified R&D personnel.

A center director reports the need for awareness that many critical problems of public education in America can be solved through R&D but only through a massive long term effort, and adds that "the rapid turnover in OE personnel and the many changes in OE program objectives do not permit the orderly growth of R and D effort." Similarly a laboratory director speaks of

> The difficulty of conducting long range programmatic R&D work under the following conditions: demands for immediate results, instability of personnel in OE, suspicion of educational R&D from the Administration and the Congress, lack of coordination of effort within OE, inadequate funds and short term and uncertain funding.

Other respondents add some new notes as in the case of the center director who lists seven lessons that have been learned:

1. The state of the art as applied to education is in its infancy despite the many examples of productivity emanating from labs and centers. The effort must be sustained over a period of time in order that the development in education can become established.
2. There must be a consistent and persistent drive toward "programmed" R&D.
3. Consistent funding is needed if *D* is to be stressed equally with *R*.
4. To expect instant change in educational practices is futile. In many areas there is an inevitable gap between research and change. On the other hand, research cannot be effective without continued efforts at dissemination and development.

5. The centers and labs are capable of putting products to use in only a small segment of the field. A national effort toward further dissemination of improved practices is needed.

6. There is a need for great understanding and capability on the part of OE personnel. They must be well-grounded both in educational practices and in the decision-making process in schools and colleges.

7. Allowance must be made for certain research programs to become "basic" in nature with the realization that knowledge is essential before applied research can profitably be undertaken.

A laboratory director believes that:

Educational R&D *can* generate and diffuse partial solutions to great local and national problems inherent in conventional educational practice. It can do this without power plays and intrusion upon the rights and powers of local, state or federal authorities—but also without cooptation of R&D by these authorities. We have learned that the limits on conventional educational wisdom are far more profound than we ever expected and that this longstanding human institution has only begun to come abreast of the humanistic, let alone the scientific revolutions of the 18th and 19th centuries. These limits can be expanded, we have learned, through the application of R&D tradition.

But, another director concedes that:

We have failed to convince the Executive branch and Congress that adequately funded and properly conducted educational R&D promises the greatest long-term return on the Federal investment of any investment the Federal Government could make in education; yet, we are convinced this is true. We have learned also that the insecurities bred by year-to-year funding and the repeated phaseouts of laboratories and laboratory programs make healthy institution building an almost impossibility.

A laboratory program director thinks:

Labs and centers may in the long run contribute more to educational practice improvement through providing models of HOW rather than specific products. R&D takes time; it requires trained, experienced personnel; it is political—It must relate to value problems, misconceptions and misperceptions of funding agencies, practitioners, etc. Educational development, dissemination and utilization are primative, inefficient, often ineffective. We must learn to apply R&D to our own practice of R&D. R&D requires more planning and hard headed evaluation and management.

Another sums up as follows:

R&D organizations are just beginning to find out that collaboration among state departments, universities, and local school systems is essential to the development of an educational product, and that early meaningful involvement in the development cycle is necessary if the product is to be accepted in the educational community. Organizations which operate on one-year contracts have difficulty in attracting and retaining qualified staff, and in gaining respect of established educational institutions which the R&D organizations are trying to influence. Development of a product is not the "end" of R&D—the product must be sold and the development process should contribute to this sale. The latter process is also costly.

Additional ideas appear in the following excerpts from longer statements in replies from other respondents:

Local, regional and national interests can be jointly served with judicious selection of R&D efforts.

I think we have to be careful that we do not promise what we are not sure of producing and that we do things so well they will have a far reaching effect on the education of children.

Significant educational innovation may not result in a climate which encourages haste at the expense of careful long-term planning, execution, evaluation, refinement, installation, and dissemination.

Educational R&D must concern itself with the learning-teaching process; to a lesser extent with material products.

The delivery system to the educational community should be tied in with existing delivery systems for maximum utilization and effectiveness of results.

The goals of a particular institution have to be carefully defined, be manageable, and be the focus of the commitment of an adequate mass of human resources.

Improvement comes in small steps, not sudden cures; evaluation of the influence of changes must be of a long-term nature; and the methodology of science is perfectly appropriate for educational research and development.

Theorists must learn to write English if they are to develop a rhetoric capable of changing the practices of practitioners.

We must provide those who would take on this difficult responsibility with the freedom to fail often and thereby to reject solution strategies which may merit testing but ultimately need to be rejected.

Building an effective research organization requires a long time and large money commitments to build and train staff, to develop effective relationships with university and school staffs for cooperative endeavors, and to conduct research and field test results.

More cost-effective products are more likely to be developed in the action setting of public schools. R&D institutions should utilize the resources of the educational industry in order to facilitate the widespread installation and adoption of new products.

Longitudinal studies must be undertaken if cause and effect relationships are to be established.

Educational research has not yet been directed toward basic determinants of individual differences in aptitudes and achievements or toward school organization and procedures.

The fragmented current character of R&D has led to fragmented, local, and uncoordinated efforts to apply the results.

Lack of an effective incentive for labs and centers to collaborate leads to duplication of efforts and dilution of impact.

We must continue to draw R&D talents from outside the educational establishment and induce these people to let R serve D, rather than *vice versa*.

The true significance of programmatic R&D cannot be realized until the programs move outside the boundaries of single institutions and their satellites. When the labs, centers, colleges of education, and school districts can get together and take the unique contributions of each to build a program, then we will realize the kinds of innovations we need.

Closer working relationships with commercial publishers must be worked out early in the development sequence if R&D products are to be picked up and disseminated widely.

R&D is not a simple process which can be successfully accomplished through t'e use of linear approaches. It is a complex process which demands constant adaptation to emerging circumstances. Data upon which R&D decisions may be based is constantly expanding, however. As more is known, there will be less necessity for trial and error approaches and more opportunity for increasing the effectiveness of planning and operational processes.

Research and development are only the first two steps in the process. Without resources for dissemination or without commitments of chief state school officers application of development processes remains limited and largely restricted to the pilot districts or situations where the development activity occurred.

MAJOR WEAKNESSES AND STRENGTHS

The final question on the inquiry form was: What is your general assessment of the major strengths and weaknesses of educational research and development at the present time? In response, a number of respondents note weaknesses such as poor provisions for dissemination and implementation, (which appears again and again in different forms); inadequate national planning, funding, evaluation, and coordination (also a frequent entry); inadequate staffing, management, and evaluation by the several organizations (repeated in various forms); misconceptions of nature and requirements of R&D; and several others which also appear in the earlier section on obstacles to effectiveness. The following comments are cited either because of their cogency or because they seem to expose weaknesses not generally recognized:

The pressure for quick results and the desire to "get in the act" have caused a proliferation of superficial activities in the name of research, and the results have been of little consequence to schooling for many of these and faith in research has been damaged.

Failure to identify and mobilize available human resources in the universities, colleges, and state agencies and failure to mobilize the profit making publishers and others in the final production and marketing of R&D prototypes.

Lack of follow-through, lack of thoroughness, too much reliance upon old, inappropriate models from other fields—not enough creation of appropriate educational models, the tendency for everyone to expect initial results and to be disillusioned when they don't immediately materialize.

Over-promising in the complex area of changing the rate of learning is irresponsible and has deterred adequate funding.

Generally, R&D institutions such as regional laboratories lack capability to develop a total learning system that is more cost-effective than a traditional program.

Limited perception of R&D personnel regarding installation of products and processes; inadequate attention to the need for *adapting* products and processes to serve better the unique needs of target schools and/or populations and to increase the variety of uses which may be made of products.

Somehow R&D has never captured the trust of the public, and the government reflects the lack of public trust through erratic funding patterns and an almost flat expenditure over the past several years.

Overwhelming tendency to make emergent R&D resources a political vehicle, whether for the White House, HEW, state educational departments, local district superintendents, or for the interest groups within the several professions serving education.

The tendency to select sure-bet, non-controversial, ultimately trivial developmental objectives, as against the challenge of serious problem solving, in order to secure social and political desirability. This tendency springs from a weakness within educators and social scientists, as most of them are conditioned by careerist cultural influences and few are drawn from high-risk settings. The tendency is reinforced by cynical pessimism and by pressures stemming from political pressures.

The bulk of the effort is going into the attainment of cognitive objectives despite the recognition of the centrality of those affective considerations which influence cognitive goal attainment.

It is poorly conceptualized, especially at the "interfaces" of R&D, development to utilization, and evaluation to all phases, methods and techniques are inefficient, more time is needed to build experience, train personnel, etc.

The major strengths which respondents cite resemble closely the comments they offer on achievements. This was anticipated, but it was hoped that some new thoughts might be evoked by the final query. This proved to be the case as several of the following comments of R and D personnel indicate:

[A major strength is] the gradual narrowing of the focus of educational R & D to the systematic use of scientific knowledge directed toward the production of useful materials, devices, systems or methods, including design and development of prototypes and processes to improve education.

The strength is the assimilation of talents presently coming into being through the R & D floundering of the past few years. R & D organizations are beginning to be heard as an independent voice in educational decision making, and are coming to be respected by other educational institutions.

Even more significant, perhaps, are these comments by three city school administrators:

A better defined role of educational R & D in the total educational enterprise is emerging. Furthermore, there is more support of R & D now by Boards of Education, school staffs, and the taxpayer.

Heightened awareness of the discipline, orientation, present and potential contributions of educational research, broadly defined, to upgrade the entire educational program quality from teacher/pupil interaction through system-wide information management.

Increasing awareness by educators of the need for systematic evaluation and assessment as accountability, however defined, continues to be emphasized.

Greater emphasis on performance objectives and individualized instruction, requiring educational personnel to examine specific behaviors of individuals and groups and to modify lessons and curriculum according to results of these systematic observations. Dynamic evaluation systems have been designed as integral components of educational systems rather than appendages thereto.

The comments of five scholars who are close observers of educational research and development are likewise revealing:

[Strength is in] R&D capabilities which have been established in several centers and labs around the nation. These agencies have developed in many cases strong staff and a backlog of experience in the conduct of R&D efforts. They have access to the resources of universities and other agencies, but have gained a good deal of autonomy in terms of being able to pursue programmatic thrusts.

For the first time there have been opened enough educational research career possibilities to begin to encourage bright young people to prepare for and enter upon educational research careers.

The most far-reaching achievement seems to me to be that the components of an R&D system are being formed (centers, labs, ERIC), and that it is now reasonable to forecast the probable emergence of a national system of education to replace the present non-system.

Research, experimentation, evaluation, and to a slight degree field testing are much better understood within the educational profession than was true 10–15 years ago. This is necessary for support and progress in educational research. There are beginning to be some materials, programs and organizations that actually are modifying practice on a significant basis which have evolved from the educational research programs.

Research and development activities, as they have been conducted in laboratories, centers, and Title III projects, have stimulated many persons and groups to become very concerned about how the change process can be accelerated to produce efficient and effective results for education, thus improvement of both theory and techniques to facilitate educational change processes. The use of these processes is now beginning to show tangible results such as IPI, the personalized approach to education as found in the Texas R&D center, and increased knowledge of decision making and innovation process as found in the R&D center in Oregon.

The major contribution of the recent focus on R&D has been to improve considerably self-study at the institutional level. I sense that school systems are very much concerned with better definition of problem areas, with the consideration of alternative strategies, and with new approaches to evaluation Much of this focus comes from the work of R&D organizations.

ADDED COMMENTS

A recheck was made to discover any opinions not adequately represented. These views are reported below, together with comments from replies which arrived too late for inclusion in the earlier sections of Part II.

To present a view at variance with the emphasis given by most of the respondents to development, dissemination, and implementation, major excerpts are quoted below from a long letter from a distinguished education researcher who felt that the inquiry form did not offer sufficient opportunity for what he wished to say:

. . . the chief purpose of educational research and its major achievement (when there is any) is that the results add to our *understanding* of some processes or phenomena relevant to education—a category that does not seem to be included among the possible achievements of educational R&D.

. . . I suppose the most fruitful research in education *brings into question* or alters the common sense on which we *act without question* in regard to the socialization and education of our children. . . .

. . . Now, the purpose of research has been to put these certainties [such as the belief that the gifted are queer, the infant's world is a buzzing confusion, etc.] to the test, and the achievement has been that we do not today believe in the doctrine of formal discipline, we do not today believe that intellectual giftedness entails social and physical queerness, we do not today believe that

infants cannot make perceptual distinctions and must be let alone, and so on and so on. The practical results have been changes in school curriculum, changes in educational provisions for gifted students, changes in child care centers and in due course in infant education. In short, ideas have consequences, and the function of educational research is to provide the ideas that will have educational consequences in speeding up educational innovation, improving evaluation techniques, altering instructional systems, etc.

But I think that I must point that almost none of the consequential research to which I refer began with these categories and purposes in mind.

. . . The chief obstacle to the effectiveness of educational research . . . is the skepticism of educational personnel and of educational researchers themselves regarding the value of research, and particularly of basic research for the improvement of education. . . .

What needs to be done to increase the effectiveness of educational research is implicit in my preceding comments. There are of course many things that suggest themselves, not the least of which in my opinion is greater cooperation and communication between the Washington research community and the academic research community.

I suppose if I could do one thing and only one thing to improve the lot of research in education it would be to establish confidence in the power of ideas derived from systematic inquiry. . . .

A contrasting view is stated succinctly by a leading advocate of educational development.

I think we should have learned by this time that our present educational R&D practices are relatively ineffective. We need much greater management and integration of research into larger projects having a relatively long life cycle. The research organization must not only be concerned with research but must have a responsibility for development and implementation. Indeed, it is questioned whether research is the most important aspect. I would almost reverse the emphasis with implementation being the most important, development next and research, while vital, still being the smallest component.

The latter opinion is partially echoed by a professor who is active in both research and development:

The major obstacle, as I see it, has been the lack of a system through which a purposive invention or better and more useful educational products and practices can be accomplished. One might go one step farther back in the cause chain and point out that a "myth of self-sufficiency" has been attached to our decentralized un-system.

And a systems analyst goes a step further and says:

It would seem desirable to chart the entire educational process so that all those involved both centrally and peripherally, can see the relative positionings and interatcions of the various elements, steps, processes and functions. This charting would permit identification of obvious gaps and duplications, would provide better systemization of the educational process, and most of all, would suggest where emphasis may need to be changed from time to time. Such capability would tie in with the objectives of establishing NIE and should become routine procedures instead of reaction to public clamor.

A late reply from a State department of education is explicit regarding the need for differentiation of tasks among types of agencies and coordination of effort:

The ———— Department of Education has considerable difficulty in initiating extensive R&D programs on its own. Its better placed emphasis would be to concentrate on the demonstration and diffusion of already developed products. However, this implies a much greater coordination than currently exists between state departments of education, laboratories, R&D centers, the U.S. Office of Education, etc., etc.

The greatest weaknesses of R&D in the U.S. are that no overall planning or coordination exists and a great deal of wasted effort is the probable result. The greatest strength is that R&D seemingly is gaining favor among legislators and the general citizenry, particularly as frustration with the present operation of our schools increases.

A somewhat different view of coordination appears in the statement of a city superintendent of schools:

> The lack of any mechanism to coordinate, channel, or set priorities for educational R&D will emerge as a major weakness when funds are available. Present and past efforts in educational R&D do not sufficiently support and supplement one another. They do not add up to a comprehensive program but rather make up a fragmented and disjointed effort.

The need for commitment to a process of improvement at all levels is stressed by a chief state school officer in a delayed reply:

> The base of involvement must be increased if the goal is to use the product and in the end create a climate where continual renewal is possible. Just buying a product provides no security beyond that act. For involvement in the years ahead requires a commitment to the process. Every school district should have from 3–5 per cent of its budget assigned to this function so local boards see this as one of their rightful functions (also state departments but at a much higher level.) We still look at R&D as done by one group apart from the user. It must become a part of each organization if it is to become effective over the long range.

One former school and university administrator calls for attention to the higher aims of education:

> Current obsession with achievement testing, particularly as reflected in performance contracting, may be driving us toward defining the aims of education in trivial terms. Can't we involve philosophers who can begin the reformations and transformations necessary to attract attention to grander aims for education than increasing pupil performance on a reading or arithmetic test?

Several respondents testify to important gains from the application of R&D to education, but few are as explicit as the director of long-range planning and development for a large city school system:

> Among large urban school systems (Council of the Great City School which includes 30 per cent of the school population) the traditional role of research departments is being revised to include such technical support functions as (1) research and evaluation of programs and projects, (2) long-range and operations planning of programs and projects, (3) design and implementation of computerized educational planning and management information systems, and (4) the development and application to programs and projects techniques of systems thinking and cost-effectiveness analysis.

A city school superintendent from a different city makes the following plea for greater investment in research and development:

> Increased federal assistance to alleviate the worsening crisis in educational program funding at all levels is inevitable. The quest for maximum effect with minimum outlay suggests that R&D should rate a high priority in access to such funds for the explicit purpose of helping to clarify goals and systematically exploring and evaluating alternative strategies for their attainment. Earmarked state and local funds would evidence similar commitment at those levels and would encourage investigation of more circumscribed—as distinguished from national—interests.

In passing, it may be noted that the late returns bring the responses to 70 per cent of all addressed, and 83 per cent of all other than local education authorities. The additional returns reflect much the same views expressed in earlier returns. The foregoing analysis of the responses to the inquiry reflects as accurately as possible the views of respondents without the injection of this writer's biases. The tabulation of the three checklists tells its own story; and the selection of comments is a wide one which encompasses every major point made by more than one respondent, and practically every point made strongly by even one respondent. This writer's generalizations and inferences are set forth in Part III.

III. Conclusions and Inferences

Anyone who threads his way through the opinions expressed in Part II of this paper will be aware of the diversity of views held by those who are "on the scene" observers of educational research and development operations: but he will note also a striking convergence on certain points which are summarized below in outline form:

Areas of Agreement

1. In attempting to apply systematic, large-scale research and development processes to education, we started at near zero capacity with respect to—

(*a*) tested models or theories for producing planned change in an enterprise as complex, tradition-bound, and fragmented as education;

(*b*) knowledge in validated, readily available, form to guide specifications of objectives and processes;

(*c*) ability to plan a complex of interrelated activities leading from recognition of a need through all the steps required to satisfy the need;

(*d*) persons adequately trained and/or experienced in the application of systematic problem-solving and solution-testing processes to education;

(*e*) managerial capability for organizing, directing, and coordinating teams of specialists engaged in complex tasks of design and development;

(*f*) proven strategies for involvement of multiple educational agencies and concerned persons in planning, adaptation, and use of new approaches and facilities; and

(*g*) consensus on the results achievable and conditions essential for successful operation.

2. In the last seven years, and more clearly in the last five, significant progress has been made in

(*a*) the development of sets of integrated materials, facilities, and procedures for achievement of specified educational objectives;

(*b*) the elaboration and effective use of sets of processes and strategies with demonstrated power for producing planned changes in education;

(*c*) the development of a small number of persons who have a good understanding of the requirements for effective application of research and development to education and a command of interpersonal and other skills essential to good management of R and D operations;

(d) the preparation, largely through first-hand experience, of a considerable number of persons with the understandings and skills requisite to specialized aspects of R and D such as program de-

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sign, product development, systems analysis, evaluation, installation of innovative systems or products, and maintenance of conditions for continuing adjustments and improvements; and

(*e*) the concentration of substantial staff and other resources for research and development in several organizations which are already making important contributions to the improvement of education.

3. Among additional measures which are required to obtain the full benefits from the application of research and development processes to education are—

(*a*) better provisions for national planning and management;

(*b*) greater attention to the building of inter-agency relationships for the installation, evaluation, and continuing improvement of the products of research and development;

(*c*) commitment on a stable, long-term basis of resources essential to effective functioning of a number of strong organizations of proven capability and the establishment of additional organizations as required by unmet needs;

(*d*) the stepping up of provisions to increase understanding of educational research and development with special reference to how various educational operations may contribute to and share in the benefits; and

(*e*) improved provisions for the training of educational personnel for the several complementary roles required for productive research, development, and implementation.

If the premises set forth in the preceding outline are accepted, the following conclusions seem justified: First, the comparatively modest investment in educational research and development in the sixties is yielding good returns. Second, the capabilities developed, and their potential for future contributions to education, are more important than the products presently ready for use. Third, it is now possible to discern additional steps which hold the prospect of making educational research and development yield large and continuing gains for the improvement of education for all individuals in our society.

A LOOK BACKWARD

When the research and development operations, established under Federal grant in the sixties, began to show signs of developing power, I thought at last we may be approaching the point when we can incorporate into education sets of need-identifying, problem-solving, and error-rectifying processes which will enable us not only to choose more wisely among alternative strategies, technologies, and facilities for learning but, even more important, to feed back into the system the effects of operations so that both incremental and reconstructive changes may be made. My hopes were based on the belief that the new institutions for research and development would incorporate elements and processes lacking in earlier attempts to reform education, including those with which I was identified.

In the early decades of this century there were many creative thinkers and innovators in American education who influenced my thinking as a teacher and school principal. I tried out many ideas stimulated by reports of the Horace Mann-Lincoln School at Columbia, the Uni-

versity of Chicago Laboratory schools, and pioneering school districts such as Winnetka, Illinois and Gary, Indiana. I discovered that innovation was enlivening both to me and to others involved as students, teachers, and parents; but I found also that the new solutions to teaching and learning often revealed deficiencies when the gloss of novelty wore off. I began to look without notable success for means of remedying the defects and building on the strengths that seemed to have the possibility of producing desired effects.

For a long time I have been haunted by linked concepts of life-long learning and environments perpetually responsive to the emerging needs for learning of individuals in human societies. Many people have based hopes for the attainment of these ideals on approaches as disparate as Rousseau's return to nature and Norbert Wiener's cybernetic or self-correcting system. Three of my predecessors as chairman of the Department of Education at the University of Chicago advocated well defined strategies of educational reform which they expounded with great vigor: John Dewey pinned his hopes largely on the elaboration and application of theory to be worked out and tested in laboratory-like school situations; Charles Hubbard Judd, true to his rigorous psychological orientation, believed that education could become a science growing in understanding and power through experimental research; and Ralph W. Tyler emphasized comprehensive approaches to the evaluation of changes in behavior and a curriculum systematically designed to achieve desired objectives. I began to look for means of tying these threads together.

In an article appearing in the Phi Delta Kappan, February 1970, I concluded that support for the desirable tendencies observed in the operations of the stronger centers and laboratories would accelerate the production of tested systems for the facilitation of learning and for the revitalization of educational operations. I went on to predict that under favorable conditions state education departments and thousands of colleges and school systems might become active partners in R and D operations by pinpointing poorly met needs, providing ideas for development, participating in experimental try-outs of prototypes and partially developed systems, promoting installation and use of products, and feeding back data for product refinement. And I concluded that "these new research and development organizations promise to supply essential ingredients for continuous improvement of education; and that their efforts, in concert with other agencies—old and new—can help to build mechanisms for need identification, problem solving, and institutional regeneration into every part of our educational enterprise." Subsequent events have strengthened my faith in that conclusion.

In the final sections of the report, I shall attempt to summarize my conclusions with respect to (1) persisting impediments to effective R and D operations in education, (2) steps toward increased productivity and power, and (3) present and prospective contributions to educational improvement.

PERSISTING IMPEDIMENTS

Deficiencies in national planning, management, support, and evaluation are a continuing impediment to realization of the full potential of educational R and D. These shortcomings spring largely from the

failure to place educational research and development in charge of an adequately funded agency at a level in the government hierarchy comparable to the National Science Foundation or the National Institute of Health. The Office of Education staff administering the program has struggled diligently to respond to criticisms (both informed and uninformed) of the new organizations and to support the more effective operations within the limits of available resources; but has had little power to influence policy. Uncertainties regarding national policy, frequent changes in personnel in HEW and the Office of Education, short-range funding, burdensome reporting and review processes often have proved frustrating to even the most strongly led and capably staffed centers and laboratories.

Another impediment has been a serious shortage of specialized personnel who know how to apply systems approaches and other analytical and decision making processes to the development of instructional materials, training of personnel, and other elements required for significantly improved performance in education. Many of the curriculum development programs are handicapped also by a shortage of highly qualified specialists from the behavioral sciences and from the disciplines which provide the content and methodology of instruction. Creative writers, artists, media specialists, and many kinds of technicians are likewise in short supply.

The lack of specialized personnel is compounded by a shortage of the managerial ability required to build productive task forces or work teams and to allocate essential developmental tasks among the several groups. Some centers and laboratories exhibit pronounced strength in staff development, staff utilization, and evaluation of staff performance; but others have not known how to tap likely sources of needed personnel or have failed to exercise good judgment in the selection of those employed. The provisions for on-the-job training and development are not yet adequate in many centers and laboratories. In some cases, management has not been skillful enough to utilize fully the talents of those employed so that some individuals of potentially high productivity are under-employed and others are over-employed to the point of frenetic activity. Poor staff development and staff utilization tends to appear in organizations with an over supply of administrators, accustomed to system-maintaining rather than system-changing operations, who are able to make little substantive contribution to the tasks they are supervising. Poor staff management is reflected also in the lack of specialized competencies requisite to task completion. However, it is my impression that even the weaker of the present educational R and D organizations are more tightly and competently managed than a majority of state and local education agencies, and far more so than nearly all colleges and universities.

Other continuing impediments arise simply from the low state of the science, technology, and arts on which educational research and development depend. Resulting inadequacies in strategies and techniques of evaluation and diffusion hinder sound development, effective use of products, and continuing improvement in response to evaluation and other feedback from users.

CORRECTIVE MEASURES

To strengthen educational R and D and realize its potential, the most important step is establishment of a national agency able (1) to spotlight urgent needs for education in our society, (2) to set in motion appropriate activities for meeting the needs, and (3) to contribute to strategic allocation of the crucial resources. A properly established and funded national agency with authority to commit funds for a number of years, and protect the requisite independence of contractors and grantees, could contribute enormously to well planned, ably staffed, and systematic efforts to solve crucial problems and increase effective application of knowledge and technology to education. The general purpose of the National Institute for Education would be to improve opportunities for education for all members of American society through systematic research and development. Among the functions to be performed are the following:

1. To provide a continuing assessment of needs for education in American society, and the extent to which these needs are being met for individuals in differing situations, especially for those whose opportunities for learning and other achievements are restricted by poverty, social prejudice, or other environmental factors.

2. To analyze and evaluate the institutions, environments, and practices which are operating to facilitate or impede the meeting of the educational needs identified.

3. To enlighten policy decisions by focusing public opinion, the attention of the President, the Congress, and State and local officers and legislative bodies, on emerging or unmet needs for education and the measures appropriate to meeting the needs.

4. To establish priorities, and reorder priorities as changing conditions required, for research and development activities, experimental programs, and intensive programs directed toward specified objectives.

5. To support research and development for the creation of facilitative learning environments, both within and outside the formal agencies of education.

6. To promote the revitalization and reconstruction of educational institutions and the improvement of practices in education through continuing evaluation and support for the continuing refinement of procedures and products.

7. To evaluate the effectiveness of operations and the contributions—realized and anticipated—from various forms of grants and contracts and from various types and combinations of activities and approaches.

An institution so conceived and provided with adequate staff and funding can move quickly to remove or reduce other impediments. Its best chance of doing this would be not so much by producing a grand national design or plan as by providing basic information which would lead to better decisions by administrators and legislative bodies, both Federal and state, and create the conditions for effective planning and operation of a plurality of agencies.

It is desirable that long-range and detailed planning of objectives, strategies, and organization of the new agency go forward through the efforts of key staff members after the establishment of the agency,

although the functions to be served and the resources required for effective performance should be visualized as clearly as possible in advance.

It is my view that an appropriation of not less than half a billion dollars is needed for propitious launching of the Institute and its support for the first two years. Substantial increments will be required in 1973, and larger amounts in each subsequent year, to support the more promising of the already initiated programs through the expensive stages of field testing, subsequent revision, and arrangements for widespread diffusion. Ample provision should be made in the first year of the Institute for the salaries of the director and other key staff members, and initiation of activities to discharge the first two functions described above. A major part of the need assessment, and evaluative studies may be performed through teams of highly qualified persons employed on a part-time or full-time basis for a year or longer while on leave from their own organization. To take full advantage of the capability already developed and go forward with the measures necessary to obtain optimum benefits from educational research and development will require increases in funding of approximately 50 per cent each year until the annual expenditure passes the billion dollar mark. It is important that the new agency have the resources and the authority to make commitments for support of organizations and projects for periods of up to five years.

One of the respondents quoted on page 34 of this report, commenting on the need for the development of systems for delivery or diffusion of products notes that "the processes of change are far more complex than the purchase and installation of products" and concludes that there must be a focus on the processes of diffusion. Another respondent quoted on page 40 expresses the view that without commitments and active cooperation of chief state school officers, the application of development processes will remain "limited and largely restricted to the pilot districts or situations where the development activity occurred." I revert to these comments to reinforce the conclusion that better ways are needed to make diffusion a rewarding activity for state education officials. To accomplish this, it is important that state departments of education be involved in the identification of needs for education in their respective states and in planning the strategies to meet these needs. As development proceeds, state department officers can also play an important role in pilot and field tests so that, when the product is ready for widespread diffusion, they may assure themselves that it actually will contribute to improvements in the practice of education. The creation of these conditions is the joint responsibility of the national management of research and development and the several research and development organizations.

A related point, not mentioned by any of the respondents, has come under my observation. It concerns the creation of conditions which will recognize contributions to the refinement of products and their uses as well as to the invention and development of a new product. Presently, a laboratory or center appears much more likely to be funded for origination of a novel set of products or processes than for modifications that improve their performance. As long as this situation continues, competition among the organizations funded by the Federal government will continue to take the form of seeking to put their "trademarks" on their own particular innovations to the neglect

of efforts to combine already available materials and technologies with new elements. The remedy lies in the establishment by the National agency of better bases for decisions regarding funding of continuing operations and new proposals.

CONTRIBUTIONS TO EDUCATION

While diffusable products *per se* probably are not the most significant outcome of educational research and development, product development is an essential activity from which other contributions flow and gain their power. In the words of one respondent, "converting educational research into actionable, validated products" is an important contribution of educational R and D. I shall not attempt to catalogue the products or even to select those which are most noteworthy; but I shall give some indication of the variety of products now in use, or approaching readiness for use, by citing examples from several categories.

Individualization of instruction has received the attention of several of the organizations with results that give promise of transforming this phrase from a rather empty slogan to an actuality in increasing numbers of schools. One approach is the system known as Individually Prescribed Instruction which was designed by the University of Pittsburgh Center for Learning Research and Development, and developed and diffused through the efforts of Research for Better Schools. This system has gone through a number of revisions as result of evaluation and other feedback and is now in use in thousands of schools scattered throughout the United States. A radically different and less tightly structured approach is that of Individually Guided Education, now under development by the Wisconsin Research and Development Center for Cognitive Learning. This approach utilizes specially developed materials, but places heavy emphasis on the guidance of instructional teams. Both systems appear to be achieving considerable success and are among the more widely known of the several approaches to individualization now being developed by research and development organizations.

Improvement of teacher education is the objective of several programs which have been developed and tested, and are now being used in steadily enlarging numbers of pre-employment and continuing education programs. Among the better known of these are the Far West Laboratory's Minicourse or Alternative Instructional Models for Improvement of Classroom Behavior. Based on earlier development of Microteaching by the Stanford Center for Research and Development in Teaching, the Minicourses are complete self-instructional packages which individuals employ to increase teaching skills. They are now being distributed commercially; and several thousand teachers in more than one hundred fifty districts are now using skills developed with the aid of the first Minicourse on "Effective Questioning." A dozen other Minicourses are at various stages of development.

A quite different approach is represented by the Personalized Teacher Education Program of the Research and Development Center for Teacher Education at the University of Texas. The latter approach, which is now attracting considerable attention, involves the personalization as well as the individualization of teacher education. It provides an assessment of personal and professional concerns and uses counsel-

ing as a means of helping the teacher or student teacher adapt his own behaviors to the needs of learners. An anticipated outcome for which there is already some evidence is the humanization or personalization of education for individuals of all ages. A third approach is that of the Northwest Regional Education Laboratory which has a program for Improving Teacher Competencies of thousands of teachers in the five states of the region, through involvement of more than thirty colleges, state departments of education, and professional associations. Still other approaches to teacher education are illustrated by the Inner-City Teacher Education Program of the Mid-Continent Regional Educational Laboratory and by the staff development components which are a part of all systems being developed by the Southwest Educational Development Laboratory and of most other laboratories. The centers and laboratories have also contributed heavily to the models of teacher education now being tried out under Office of Education funding.

Early childhood education is another activity in which laboratories and centers are heavily involved. The Southwest Regional Laboratory at Los Angeles has spent five years developing, testing, validating, and readying for commercial production a Kindergarten Instructional Concepts and Beginning Reading Program. This program has closely integrated components which include, in addition to the instructional system, an instructional support system, featuring individualized practice through tutoring and parent assistance through instructional exercises and learning games. It also provides training programs for each of the instructional and support systems. Bids for commercial production are now being received on this program.

The Southwest Educational Development Laboratory at Austin has developed an Early Childhood Education Program specifically to "meet the needs of urban and rural black and Mexican-American pre-school children, ages two to five. This laboratory makes an effort to include in the program all elements necessary to its success, such as teacher development and parent-community involvement. A sequential three year instructional program for Mexican-American children has been developed to cover visual, auditory, motor, English language, and reasoning and problem-solving skills. Contracts are now being negotiated for extensive field testing of this program.

Other important contributions to Early Childhood Education are being made by the National Program on Early Childhood Education, coordinated by the Central Midwestern Regional Educational Laboratory, and by the Appalachia Educational Laboratory. There are numerous other programs for pre-school and early elementary years which include emphasis on reading and language development and in many cases special provisions for the needs of the members of groups disadvantaged by poverty, low social status, or language problems. There are also programs for the facilitation of learning in mathematics, science, social education, and aesthetics.

Improvement of educational organization and administration is a major focus of two centers and one laboratory. One of the better known products in this area is the Multi-unit School designed and developed by the Wisconsin Center to facilitate effective team teaching and coordination of teams, through careful delineation of roles and the training of principals and team leaders. Several hundred schools in Wisconsin and elsewhere have now adopted this form of

organization. The Center for the Advanced Study of Educational Administration is contributing to the improvement of organization and administration through its Strategies of Organizational Change and other processes for adapting organization and administration to instructional needs. The Regional Educational Laboratory for the Carolinas and Virgina is developing Administrative and Organizational Systems and Educational Improvement Systems for colleges and universities. The ways in which the materials and provisions for training of personnel have been worked out add important dimensions to the older approaches to institutional study and improvement.

Some of the programs which have been described are already in extensive use and have proved themselves in a variety of situations; and others are just completing field testing and will shortly be ready for widespread adoption; and still others are undergoing extensive revision as a prelude to field testing. All are being worked out with great care to meet specified objectives under closely defined conditions. There are other programs of great diversity equally worthy of mention, such as the Center for Urban Education's Citizen Participation Programs, the Southwestern Cooperative Educational Laboratory's Communications Arts Package, and the Social Accounts Program of the Johns Hopkins University Center for Social Organization of Schools. These and several others hold exciting possibilities, but I do not have at hand evidence on their performance.

In the long run, the refinement of research, development, and implementation strategies is likely to assume greater importance than the products now coming from research and development organizations. The case was strongly put by one of the center directors in the quotation at top of page 20 of this report, and it may be noted that this director believes that these development, diffusion, and research strategies "are now becoming part of the accepted tools for educational improvement throughout the educational community." Although this statement may appear over-optimistic, it is reinforced by the director of planning and development for a large city school system in his comments quoted on page 48 regarding the effects on urban school systems. It is also reinforced by the professor quoted on page 43 who asserts that "research, experimentation, evaluation, and to a slight degree field testing are much better understood within the educational profession than was true 10–15 years ago".

Another contribution that may assume great importance in the future is a modest beginning toward building of linkages which permit each type of educational agency to perform the functions for which it is best adapted, in collaboration with other agencies which perform complementary functions. An illustration is the close relationship between Wisconsin State Department of Public Instruction and the University of Wisconsin Center in the development, installation, and monitoring of the multi-unit schools. The State Department has made important contributions at all stages of development and has assumed primary responsibility for diffusion. Under its sponsorship several hundred Wisconsin schools have adopted the multi-unit organization after careful planning and staff training. Another example is the close cooperation between the Texas Education Agency and the Southwest Educational Development Laboratory in designing and developing improved programs for migrant education; and a third example is the Northwest Regional Laboratory's extensive

involvement of state departments of education, colleges, universities, and professional organizations in its programs of teacher education.

Numerous examples may be found of close collaboration between laboratories and centers, several of which have been cited previously. While these examples are encouraging, they also illustrate how far we have to go in building a national system of mutually reinforcing agencies which will include not only the publicly governed agencies but also commercial publishers and educational suppliers of many kinds. These links, too, are now being forged.

Another type of contribution to the development of delivery systems is represented by the Far West Laboratory's ALERT system (Alternatives for Learning through Educational Research and Technology). The first product of this system is an Elementary Science Information Unit which describes six new, relatively well developed programs suitable for science instruction in elementary schools. This unit has already been tried out by five hundred users and is now ready for commercial distribution. The intent of the ALERT system is to help educational planners, administrators, teachers, and other decision makers to understand and choose among the new processes and products available to schools. This is a direct answer to the plea of the respondent who bemoaned the "lack of an effective system for translating R&D outcomes into practice" and described the need for a "system for bringing R&D outcomes (as appropriately packaged and developed) into the principal's office, or into the classrooms of teacher training institutions."

I think that it may be said that the research and development organizations have already demonstrated that important improvements in education can be brought about through the application of research and development strategies and processes. The success of the first line of products is sufficient to assure widespread adoptions; and the provision for evaluation, while not yet good enough, are sufficient to generate successive improvements in the products. I anticipate also that evaluation, application of performance criteria, and cost-effectiveness analysis will lead to successive products and systems which eliminate weaknesses in the present products and incorporate new features which make possible higher levels of performance and/or lower costs. New needs will also be identified which will lead to new types of products supplementing those already under development. Whereas most of the products now in use are designed to operate within the constraints imposed by present educational institutions and conventions, I anticipate that in the design and development of future products bolder attempts will be made to break through the constraints and create a new order of educational institutions. As understanding of research and development operations grows, more and more schools and colleges will become experimental centers and join a continuing search for better ways of identifying and meeting needs for education.

These and related developments which can be foreseen if the indicated corrective measures are taken should produce over the next ten years, and progressively thereafter, a series of accelerating, cumulative, and reconstructive changes to raise the level of educational achievement for all members of the society. The changes will include increased attention to out-of-school environments and experiences, a reexamination of present educational structures and the creation of a variety of settings for individualized instruction, social process learning, and other imaginative alternatives to traditional practices.

APPENDIX

Appendix A.—Inquiry Form and Covering Letter

Southwest Educational Development Laboratory,
Austin, Tex.

Dear ———: At the request of Congressman John Brademas, I have agreed to prepare a paper as background material for the Select Subcommittee on Education's Study of the National Institute of Education. The working title suggested by Congressman Brademas is *Educational Research and Development in the Sixties: A Mixed Report Card.*

I seek your help in making the paper reflect the experiences of those who have been actively engaged in trying to make educational R&D as productive as possible. Even though I know how heavy the demands on your time are, I hope you will take the time to give your first-hand reactions to the attached check list and to add any comments that occur to you.

The information you supply will be used in preparing the pap r for the Select Subcommittee on Education, of which I shall be glad to send you a copy as soon as it is ready. Subsequently, I hope to incorporate the substance of your ideas in a more complete reexamination of educational R&D.

Sincerely yours,

Francis S. Chase.

Enclosures.

TO: Francis S. Chase,
Southwest Educational Development Laboratory,
800 Brazos Street
Austin, Texas 78701
FROM: ----------
DATE: ----------

EDUCATIONAL RESEARCH AND DEVELOPMENT ORGANIZATIONS

Explanation.—Please—

1. check all items you consider important
2. add other items of equal or greater importance
3. double check the two or three you consider crucial
4. add your comments.

1. What do you regard as the chief achievements of educational R&D?

———the speeding up of educational innovation.
———the improvement of evaluative techniques.
———the development of improved instructional systems.
———contributions to improved processes of planning and problem-solving.
———the use of systems approaches and feedback loops.
———improved processes for institutional self-study and regeneration.
———increased collaboration among educational agencies.

Comments:

Please return by March 8, 1971.

(37)

To: Chase
From: ----------
Explanation.—Please—
1. check all items you consider important
2. add other items of equal or greater importance
3. double check the two or three you consider crucial
4. add your comments.

2. What have been the chief obstacles to effective operations?
_____meager knowledge of factors affecting learning.
_____inadequacy of methodology in educational research.
_____resistance to change by educational personnel.
_____inadequate funding.
_____lack of experience in the management of R&D operations.
_____shortage of personnel specialized in R&D operations.
_____unrealistic expectations of immediate results.
_____jealousy among educational institutions.

Comments:
Please return by March 8, 1971.

To: Chase
From: ----------
Explanation.—Please—
1. check all items you consider important
2. add other items of equal or greater importance
3. double check the two or three you consider crucial
4. add your comments.

3. What steps are most vital to the increased effectiveness of educational research and development?
_____better arrangements for national management of R&D.
_____better provisions for the evaluation of R&D performance.
_____closer control by Federal authorities on R&D operations.
_____a significant increase in Federal support.
_____better provisions for training R&D personnel.
_____greater autonomy for the several R&D organizations.
_____better understanding of the nature of educational R&D by_____

Comments:
Please return by March 8, 1971.

To: Chase
From: ----------

4. What are the most valuable lessons to be learned from our experience up to this time with research and development in education?

5. What is your general assessment of the major strengths and weaknesses of educational research and development at the present time?

Please return by March 8, 1971.

Appendix B.—List of Persons Responding To Inquiry on R. & D.

Abbott, Max; Director, University of Oregon, Center for the Advanced Study of Educational Administration, Eugene, Oregon.
Bailey, Stephen; Chairman, Policy Institute, Syracuse Research Corporation, Syracuse, New York.
Baker, James F.: Assistant State Commissioner, Department of R. & D., Boston, Massachusetts.
Barnes, Jarvis: Assistant Superintendent, Atlanta, Georgia.
Barton, Rogers: Director of Planning and R. & D., Dallas, Texas.
Becker, James; Director, Research for Better Schools, Incorporated, Philadelphia, Pennsylvania.
Bertram, Charles L.: Appalachia Educational Laboratory, Incorporated, Charleston, West Virginia.
Bidwell, Charles: Department of Educational Sociology, The University of Chicago, Chicago, Illinois.
Blanchard, Robert: Superintendent of Schools, Portland, Oregon.

Bloom, Benjamin; Department of Education, The University of Chicago, Chicago, Illinois.
Borg, Walter; Far West Laboratory for Educational Research and Development, Berkeley, California.
Brain, George B.; Dean, College of Education, The University of Washington, Seattle, Washington.
Brewer, Anita; Southwest Educational Development Laboratory, Austin, Texas.
Brown, George W.; Superintendent of Schools, Webster Groves, Missouri.
Brownell, Samuel M.; Yale University and the University of Connecticut.
Bush, Robert; Director, Stanford University Center for R. & D. in Teaching, Palo Alto, California.
Carmichael, Benjamin; Director, Appalachia Educational Laboratory, Incorporated, Charleston, West Virginia.
Carroll, John B.; Psychologist, Educational Testing Service, Princeton, New Jersey.
Carter, Launor F.; Vice President, Systems Development Corporation, Santa Monica, California.
Conner, H. T.; Assistant State Superintendent, North Carolina State Department of Public Instruction, Raleigh, North Carolina.
Crowther, Jack; Superintendent of Schools, Los Angeles, California.
Cunningham, Luvern; Dean, College of Education, The Ohio State University, Columbus, Ohio.
Dayton, Mona; Social Sciences Division, Southampton College, Southampton, New York.
Dentler, Robert; Director, Center for Urban Education, New York, New York.
Edgar, J. W.; State Commissioner of Education, Texas Education Agency, Austin, Texas.
Essex, Martin; State Superintendent of Public Instruction, Department of Education, Columbus, Ohio.
Felder, Del; Department of Curriculum and Instruction, The University of Houston, Houston, Texas.
Fish, Lawrence; Director, Northwest Regional Educational Laboratory, Portland, Oregon.
Gage, N. L.; Director, Stanford University Center for R&D in Teaching, Palo Alto, California.
Getzels, J. W.; Department of Education, The University of Chicago, Chicago, Illinois.
Giaudrone, Angelo; Superintendent of Schools, Tacoma, Washington.
Hannen, Lew W.; Superintendent of Schools, Durham, North Carolina.
Hansford, Byron W.; State Commissioner of Education, Denver, Colorado.
Heathers, Glenn; University of Pittsburgh Learning Research and Development Center, Pittsburgh, Pennsylvania.
Hemphill, John; Director, Far West Laboratory for Educational Research and Development, Berkeley, California.
Higginson, George; Southwest Educational Development Laboratory, Austin, Texas.
Hilgard, Ernest R.; Department of Psychology, Stanford University, Palo Alto, California.
Hood, Paul; Far West Laboratory for Educational Research and Development, Berkeley, California.
Hopkins, Everett H.; Director, Regional Educational Laboratory for the Carolinas and Virginia, Durham, North Carolina.
Howe, Harold II; Vice President, The Ford Foundation, New York, New York.
Hubert, Frank; Dean, College of Education, Texas A&M University, College Station, Texas.
James, H. Thomas; President, Spencer Foundation, Chicago, Illinois.
Klausmeier, Herbert; Director, Wisconsin Research and Development Center for Cognitive Learning, Madison, Wisconsin.
Koutnik, Paul G.; Mid-Continent Regional Educational Laboratory, Kansas City, Missouri.
Lamberth, E. L.; Superintendent of Schools, Norfolk, Virginia.
McCarty, Donald; Dean, School of Education, The University of Wisconsin, Madison, Wisconsin.
Medsker, Leland L.; Director, The University of California Center for R&D in Higher Education, Berkeley, California.

Mink, Oscar; Regional Educational Laboratory for the Carolinas and Virginia, Durham, North Carolina.
Mitchell, James; Associate State Superintendent, Iowa State School Agency, Des Moines, Iowa.
Moeller, G. H.; Division of Evaluation and Research, St. Louis, Missouri.
Nedler, Shari; Southwest Educational Development Laboratory, Austin, Texas.
Neff, Franklin; Institute for Community Studies, Kansas City, Missouri.
Nixon, L. C., Jr.; Director, Mid-Continent Regional Educational Laboratory, Kansas City, Missouri.
Olivero, James; Director, Southwestern Cooperative Educational Laboratory, Albuquerque, New Mexico.
Otto, Wayne; Wisconsin R&D Center for Cognitive Learning, Madison, Wisconsin.
Ovsiew, Leon; School of Education, Temple University, Philadelphia, Pennsylvania.
Pedersen, George; Associate Director, Midwest, Administration Center, The University of Chicago, Chicago, Illinois.
Pellegrin, Lionel; Director, Division of Continuing Education, Louisiana State University, Baton Rouge, Louisiana.
Phillips, A. Craig; State Superintendent of Schools, State Department of Education, Raleigh, North Carolina.
Plucker, Orvin L.; Superintendent of Schools, State Department of Education, Kansas City, Kansas.
Prasch, John; Superintendent of Schools, Lincoln, Nebraska.
Quilling, Mary; Wisconsin R&D Center for Cognitive Learning, Madison, Wisconsin.
Randall, Robert; Southwest Educational Development Laboratory, Austin, Texas.
Rath, Robert L.; Northwest Regional Educational Laboratory, Portland, Oregon.
Romberg, Thomas A.; Far West Laboratory for Educational Research and Development, Berkeley, California.
Rosenau, Fred S.; Far West Laboratory for Educational Research and Development, Berkeley, California.
Sallett, Stanley; Assistant State Commissioner of Education, Trenton, New Jersey.
Santee, Harold T.; Superintendent of Schools, Palo Alto, California.
Scanlon, Richard; Research for Better Schools, Incorporated, Philadelphia, Pennsylvania.
Schooling, Herbert W.; Provost and Dean of Faculties, University of Missouri at Columbia, Columbia, Missouri.
Shedd, Mark; Superintendent of Schools, Philadelphia, Pennsylvania.
Simon, Kenneth; Northwest Regional Educational Laboratory, Portland, Oregon.
Smith, Verna; Central Midwestern Regional Educational Laboratory, Incorporated, St. Ann, Missouri.
Snyder, Walter F.; Superintendent of Schools, Kanawha County School District, Charleston, West Virginia.
Stufflebeam, Daniel L.; Director, Evaluation Center, The Ohio State University, Columbus, Ohio.
Talbot, Walter D.; State Superintendent of Public Instruction, Utah State Education Agency, Salt Lake City, Utah.
Underwood, Ben; Department of Psychology, Northwestern University, Evanston, Illinois.
Vandermeer, Abram W.; Dean, College of Education, Penn State University, University Park, Pennsylvania.
Wallace, R. C.; Director, Eastern Regional Institute for Education, Syracuse, New York.
Whittier, C. Taylor; State Commissioner of Education, Kansas State Education Agency, Topeka, Kansas.
Wilkerson, Woodrow W.; State Superintendent of Schools, Virginia State Education Agency, Richmond, Virginia.
Wilson, David; University of Texas R&D Center For Teacher Education, Austin, Texas.
Yeager, John; The University of Pittsburgh, Learning Research and Development Center, Pittsburgh, Pennsylvania.

CLASSROOM TEACHERS AND EDUCATIONAL SCHOLARS: THE PROBLEM OF GETTING THEM TOGETHER*

By ALBERT H. YEE

UNIVERSITY OF WISCONSIN, MADISON

Professional fields requiring academic level study and certification to pursue have at least two main types of workers. There are practitioners carrying out what is known and acceptable for public use and there are theorists and researchers who work primarily to advance knowledge and innovation. Both types of workers normally share a common foundation of professional preparation, knowledge, and methodology. With a theoretical-technical jargon unfamiliar to the layman, feedback is assumed to flow between shop and lab. It is also assumed that the purposes and orientation of both levels relate fairly well or at least do not conflict. Thus, there are practicing weathermen, physicians, attorneys, flight engineers and pilots, computer programers, etc. who relate professionally to meterorologists, medical researchers, legal specialists, aeronautical designers, and electronic engineers, respectively, who work mainly in universities.

Over-simplified as the above description may seem, it helps characterize one great problem in America's educational system, that is, the lack of relationship between the professional orientations of classroom teachers and educational scholars and their incompatibility. This essay will attempt to show what the problem is, views of why it exists, and how it might be eliminated.

A PERSISTENT AMERICAN PROBLEM

The disparity between classroom teachers and educational scholars has existed since the earliest development of education in America. Long before the writing of the Constitution, two distinct and independent educational systems had developed in colonial America—one oriented to classical scholarship, social status, and leadership and another directed to elementary education for the common people.

The educational contrast appears in period writings, such as by Ralph Waldo Emerson. His bold essay of 1837, "The American Scholar," asserted the validity of and need for Americans as scholars, "Man thinking," "free and brave," extending from but independent of European intellectual traditions. Emerson's description of the scholar's education "by nature, by books, and by action" and his worthy duties seems to the modern reader as very high-minded and abstract. For Emerson, scholarship expressed the greatness that human reason and action can and should accomplish.

When Emerson discussed the theme of "education," however, he did not mention scholarship but focused instead upon the up-lifting of all men, to make them "able, earnest, great-hearted men." Discuss-

*[A chapter in Allen, D. (Ed.) *Controversy in education.* Philadelphia: W. B. Saunders, in press]

ing the work of teachers at length. Emerson described teaching not in terms of what knowledge should be taught, but how it should be conducted. Emphasizing the virtues of humor, understanding, character-building, and acceptance of individual differences, Emerson implied that primary teaching was a true feminine pursuit. He suggested that teachers "cherish mother-wit" and try to "smuggle in a little contraband wit, fancy, imagination, thought." He was concerned that teachers not be so inflexible with classroom rules and order that they maintain a "military" setting characteristic of masculine leadership. Thus, there is the clear implication that teaching youngsters is feminine and socio-emotional and scholarship is masculine and intellectual.

Ever since the historic "Old Deluder Satan Act" of 1647 beginning America's system of public education, communities have had problems finding willing and qualified teachers for their youth. Richard Hofstadter (1966, p. 316) wrote that early American communities "settled for what (teachers) they could get and what they got was a high proportion of misfits and incompetents." Washington Irving's Icahabod Crane probably would have been one of the better teachers of his day if he really existed. Against the risks of male "rascals" serving as teachers, Hofstadter saw that "what helped American education to break out of the vicious circle was . . . the graded primary school and the emergence of the woman teacher."

Development of the tax-supported Common School that Barnard, Mann, Stowe, and others successfully fought for before the 19th Century was half over expanded America's public education considerably but magnified the staffing problem. The solution became the schoolmarm, an unwed lady usually poorly educated herself who "kept" school until she finally married. The teacher in America became a figure of respect more for her role than her professional competence and scholarship. Almost every woman seemed to believe she could do as well or better if she could only endure the schoolmarm's limited compensation, routines, and social scrutiny and restrictions. To a large extent, the image of the teacher as a quasi-professional persists to the present day.

Professional training for teachers and licensing developed slowly and was conducted in normal schools without association with scholars and the academic world. Adolphe E. Meyer, a historian specializing in American education described normal schools of the 1860's as follows: "The plain truth is that among academicians the normal school was considered worthy only of derision" (1957, p. 206). Teacher education was perfunctory preparation for teaching, providing by necessity basic learnings as well as simple pedagogic skills, and it is not surprising that early teacher training appeared to have little positive influence over classroom conditions.

Near the end of the 19th Century, Joseph Mayer Rice, a pediatrician turned educational crusader wrote the following: "Indeed the professional weakness of the American teacher is the greatest sore spot of the American schools" (1983, p. 14). Extraordinarily committed to the cause of many intellectuals of his day to overcome the rigid and irrational conditions of schools, Rice took leave of his medical practice to study the new "science of education" in Europe for two years. Returning to the United States, he studied classrooms in

36 major cities for six months. Putting his findings in a series of published essays, Rice saw much to criticize and little to praise; but the low professional quality of teachers upset him most of all. Without adequate teaching training and selection and the use of "scientific methods" in schools, Rice saw that "the office of teacher in the average American school is perhaps the only one in the world that can be retained indefinitely in spite of the grossest negligence and incompetency" (1893, p. 15).

Similar to Emerson, Rice was most concerned with *how* teachers taught and handled children instead of what subject matter knowledge they provided.

William James' classic work of 1899, *Talks to Teachers on Psychology*, illustrates the differing orientations and emphases of scholars who pursue educational concerns to those of teachers who deal with classroom routines. In his preface, James explained that after accepting the invitation of the Harvard Corporation to speak to various groups of teachers on psychology, he found he had to modify his presentation:

> I have found by experience that what my hearers seem least to relish is analytical technicality, and what they most care for is concrete practical application. So I have gradually weeded out the former, and left the latter unreduced; and, now that I have at last written out the lectures, they contain a minimum of what is deemed "scientific" in psychology, and are practical and popular in the extreme (p. v).

With contrasting types of students to instruct, objectives, community support, training, and traditions, it is no wonder that the orientations and interests of academic scholars and classroom teachers differed. Early scholars who contributed to the development of professional education came from diverse fields of study and brought rich backgrounds of knowledge and intellect that they might have shared. It is interesting to note that they did not regard teachers as intellectual colleagues and did not seek to impose their orientation and scholarship upon them. The scholars seemed satisfied in trying to get teachers to "relax," and foster nurturance, understanding, and warmth in their teaching, etc. The scholars' simple level of discourse to teachers is suggestive of the quasi-professional teachers and sorry classroom teaching they found in schools.

Recent studies of classroom teachers indicate that there has been little change in the contrast between the professional orientation of classroom teachers and scholars. Present-day teachers have been found to express little concern for educational change and intellectual masters. Their main concerns seem directed more to the here-and-now and concrete problems of classroom dynamics. P. W. Jackson (1968) characterized the orientation of teachers in part by saying they had a "tenderminded world view," which "idealized children and was tinged with a quasi-mystical faith in human perfectability." Studying the language of teachers, Jackson wrote: "Lacking a technical vocabulary, skimming the intellectual surface of the problems they encounter, fenced in, as it were, by the walls of their concrete experience, these teachers hardly look like the type of people who should be allowed to supervise the intellectual development of young children" (p. 148).

Jackson said that teachers differ greatly from researchers and others who are oriented to rationality, intellectual models, and educational

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change. But with the impersonal, formal, and institutionized nature of schools and the complex nature of classrooms, Jackson asserted: "Our present cadre of elementary school teachers, with all of their intellectual fuzziness and sticky sentimentality, may be doing a job better than would an army of human engineers" (p. 152). Jackson's description of teachers and their classroom tasks, therefore, lead him to an understanding of their difficult roles and pressures rather than simple condemnation of their shortcomings. As schools are organized and maintained today, the quality of teaching is severely limited and rational models of teaching may be inappropriate. Thus, scholars and teachers differ because their roles, functions, and expectations are contradictory.

The continuing contrast between scholars and classroom teachers is further shown in studies of teachers' perceptions of children's behavior. In 1928, E. K. Wickman published his classic report which found that teachers and mental health specialists disagreed considerably in their views of children's normal and abnormal behavior. Replicating the general purpose of Wickman's work, Tolor, Scarpetti and Lane (1967) found that psychologists were more accepting and tolerant toward a greater variety of child behavior than teachers and considered a wider range of behavior as normal.

Beginning teachers were found to be less tolerant than experienced teachers, and their differences were greater than between the psychologists and experienced teachers. Thus, teachers appear to develop more modern and professional perceptions of child behavior through classroom experience but remain distinct from the psychologists. In the sense of understanding the natural behavior of children, the findings for inexperienced teachers indicate that they are inadequately prepared to assume full classroom responsibilities. Since American teachers teach an average of less than two years, the study by Tolor et al. is one more indication that teacher preparation and general professionalism in teaching must be improved.

The specialties of theorists and researchers in professional education vary considerably and represent all areas having some educational relevance. All of which seems indicative of the wide importance of educational studies and their great growth, especially in the last two decades. Many more scholars in fields of study other than education contribute to educational scholarship today, especially in the development of new curricula and textbooks. With Sputnik's impetus to the improvement of science and mathematics learning through public concern and federal funds, academic scholars influenced classroom teaching within a few years with their development of the New Curricula. With similar authoritative help from scholars in physics, economics, biology, and other fields, new curricula and materials have also been developed in those areas. Interestingly, the New Curricula does not imply much change in teacher quality. One way to view them is that they make it more difficult for ordinary teachers to make errors and waste teaching time, i.e., they tell the teacher exactly what and how to teach. However, whether the New Curricula provide gains in learner achievement significantly greater than older resources remains an open question and evaluation to date is contradictory.

The significant federal support of educational scholarship, which emerged in 1954 when Congress passed the Cooperative Research Act,

is largely responsible for the recent advances in the production and quality of scholarship. In 1968, the federal government provided $2.3 billion dollars for research and development in education, which is tiny compared to more than $78 billion spent for defense in 1969 and the $6 billion the Space Program consumed in 1966 alone, but great indeed compared to past federal support.

Comparing the progress of educational studies and implementation before 1954 and today, we can only say that the difference is revolutionary. Besides having greater financial support, researchers benefit too from great technical advances in processing and analyzing data. Educational scholarship is rapidly maturing, and the research competence of those earning doctorates in education is more seriously developed than before. There seems to be no doubt that the progress of educational scholarship will continue. However, there remains more promise than fulfillment yet that the value of such intellectual work will influence education tremendously. At the present time, the quality and quantity of research publications present a greater basis for progressive change. However, its impact upon schools and classroom teaching may not be perceived. All of such research progress has created greater distance between educational scholars and classroom teachers. The practitioners remain basically the same in relative professional status and growth, despite the steady but slow improvement of teacher preparation and teaching conditions. Unfortunately, research and development in teacher education has been the most lethargic in educational scholarship.

As educational scholarship proliferates, many facets of modern schools do show significant improvement, from lunchroom facilities to educational laws and textbooks. Relative to such change, however, it cannot be said that there has been a corresponding change in teacher quality. School organizations have not been improved to the point where teacher quality will not be wasted. The schoolmarm characteristics of the past, poorly prepared "keepers of school" lacking lasting commitment to the teaching professions, and the one-teacher-one-room concept of school organization, should finally become as archaic as the horse and buggy, yet many of such characteristics continue. What good are all of the advances in schools if we do not significantly raise the professional caliber of teachers?

Teacher education was slowly developing as the Twentieth Century began. By 1920, there were 50 teachers colleges and 200 in 1940. Today, four years of study leading to a bachelor's degree is normally the minimum requirement for teachers, and it is becoming more and more difficult to find a college or normal school strictly for teacher preparation. Yet America's 1,250 teacher education centers largely ignore their key social responsibility of supplying schools with well-trained teachers. Still oriented to quantity of output instead of quality, teacher education suffers from inadequate research and development and inept, contradictory programs.

The characteristics of teacher educators are changing much more rapidly than the students entering teaching. Successful classroom experience alone qualified many teacher educators in the past, but more teacher educators today have earned doctorates. The most prestigious schools of education are producers of educational scholarship and their professors resemble scholars in other fields far more than they do

classroom teachers. The reverse was true not too long ago and remains so in smaller colleges. Ironically, many of the younger educational scholars do not have much or any experience as classroom teachers in schools and some carry questionable pride in that fact. The stereotype "Mickey Mouse" professor of education is far less valid today than that of the "Mickey Mouse" student, but such a change does not seem to be advancing educational progress in the schools. The most apparent effect of the difference in teacher education is that it has created a greater gulf between practitioner and scholar.

Teacher candidates, especially those preparing for elementary classrooms, still rank lower academically than most college students and surveys of national samples do not indicate much improvement over time. Taking "Ed." courses is still perceived by many as a sign of intellectual and scholastic weakness. Pursuing teacher preparation is justified by love of children, which should be basic and assumed, and limited alternatives in career choices more often than for intellectual and creative motivations.

Working in contrasting social systems also creates distance between educational scholars and teachers. Seriously concerned with the progress of school psychology, B. R. McCandless (1969) identified the profession's major problem as being the role conflicts that frustrate many school psychologists. On one hand, as social scientists, school psychologists have been trained in a "masculine" discipline and associate themselves with scientific societies. On the other hand, however, practicing school psychologists function in schools which are "feminine" in social orientation and do not offer them opportunity to conduct research and development. The problem tends to divide academic and practicing school psychologists; the former is viewed as concentrating on "the growing edge of innovative demonstration, service, manipulation, and research," while the practitioners are perceived as "being clinicians and tire repair men, diagnosers and healers" (p. 15).

McCandless' discussion carries importance for the broader issue of this paper. His definition of social systems as masculine or feminine as follows is especially noteworthy:

> A masculine social organization is task oriented, pragmatic, ruggedly autonomous and independent, often impatient of human relations, full of initiative and innovation and, despite and often in contradiction to its pragmatism, sometimes inclined to stop impatiently to ask, "Where are we going and what does it mean?" A feminine social organization, however, stresses happiness, self-actualization, and "getting along all right." It is sensitive to human relations and conservative; it jealously guards its status quo, safety, and security. It is nurturant, obedient, and responsible. When its values are threatened, it is exceptionally autocratic (p. 15).

Margaret Mead's (1962) portrayal, "a distillate of American ideas of the teacher," presents the teacher as a woman "urging, helping, poking, scolding, encouraging those whose steps though lagging slow to school, went storming out to playing." Considering the male teachers, she wrote: "The man who teaches in grade school has to deal with a self-classification of being a 'man teacher,' thus tacitly acknowledging that he is a male version of a role which is felt to be feminine" (pp. 506).

Putting it more negatively, Richard Hofstadter (1966) argued that the ove whelming feminine character of American schools and the emphasis upon life-adjustment in schools are clear signs of America's

anti-intellectualism. He wrote: "The United States is the only country in the Westernized world that has put its elementary education almost exclusively in the hands of women and its secondary education largely so . . ." (p. 320). Hofstadter made it clear that his point (and this writer agrees) is not the superiority of male teachers. In fact, although he did not say so for males, he did say that women may be preferred for certain levels. However, the fact that teaching is perceived by social scientists as a feminine profession in America and does not offer "men the stature of a fully legitimate male role," indicates the transient nature of teaching as a career and its less than adequate professional development.

As a member of the academic world, today's educational scholar is beginning to overcome or at least develop enough self-respect to ignore the suspicions of his academic colleagues that he and his field are soft intellectually and lack depth. He has accomplished that progress in academe by winning scholarly depth, recognition, and rewards that seem irrelevant to school practitioners. Directing his publications and papers to other scholars, the educational scholar provides almost no direct feedback to the practitioner. Respectable as it is becoming, his most challenging and innovative work often seems too abstract, esoteric, and impractical to teachers and school administrators. Even when he utilizes school resources for his research, the educational scholar typically expresses disdainful regard for school practitioners by being unmindful of any need to share his findings with those who provided the data for his studies.

The most respected research journals are often necessarily technical and not directed to teachers as consumers. Their reports, which are typically tentative and segmented, do not reach teachers except through occasional digested summaries in practitioner-oriented journals and passing mention in education courses. What clearly epitomizes the problem this paper is describing is the great contrast between the journals educational scholars (e.g., *American Educational Research Journal*) and those to which teachers subscribe (e.g., *The Instructor*).

What McCandless said about school psychologists and their role conflicts is more or less true for all educational scholars. While the social systems of schools may be characterized as feminine, the academic world is masculine. Therefore, it appears that about the only thing classroom teachers and educational scholars have in common is their general abstract concern for schools. Stemming from America's earliest days, the problem of contrasting orientation in educational thinking and activities has little justification in an age when the problem of quantity and equality of education have largely been solved and the concern of educational quality must be faced.

OVERCOMING THE PROBLEM

The great division between scholar and teacher hinders the progress of education. Its growth becomes more alarming as time passes. Because of their leadership role and control of teacher education, educational scholars must begin to overhaul teacher preparation completely and build appropriate training systems that they are supposed to know how to develop best. Now that a surplus of teachers has appeared in many parts of the country, there seems to be less reason to delay the

revision of standards and curricula as has been done in the past with the excuse that the problem of teacher shortages had priority. The several support and the possibility of implementing several in the future may be the first real steps toward up-lifting teacher quality and professionalism through teacher education.

More educational scholars must realize that their responsibility as professional workers in education cannot be fulfilled entirely through academic-level publications and activities. Their relationships to teachers and schools must become more direct and real, which may materialize through recent developments to restructure the organization of schools. The blueprints and rationale for such improvements have been proposed by educational scholars for over a decade now. In general, the plans replace the outdated one-teacher-one-class arrangement with groups of teachers working together in instructional teams that are led by master teachers.

Far more curricular and instructional alternatives become possible in teams—teachers can contribute their particular strength to the team and help colleagues with their special competence and needs, and teams make it possible to work more flexibly with varied sized groups of pupils. Restructuring the school system in such manner will make instructional planning and activities more objective and open for evaluation and innovation. Whether she was beginning or experienced, a teacher's self-contained classroom has been her own roost and entering it was an invasion of her privacy. Teams of teachers working closely together with the same contingent of pupils forces them to communicate and systemize routines. In such settings, evaluation and public scrutiny could become realistic, everyday practice.

As more schools reorganize to form more complex and meaningful professional units, new teaching roles and work relations will need to be established. Tyro teachers will be able to gain greater experience and professional training under the guidance and example of the team's experienced members. Also, the team will provide new vertical leadership; each unit might be led by a master teacher who combines practical experience as a successful teacher and doctoral-level studies. It is not so far-fetched to think that such leaders would normally attain doctorates someday. Their leadership role provides one way to bridge the gap between practitioners and educational scholars. While able teachers in the past have quit the classroom to find greater responsibility, recognition, and salary as administrators and educational scholars, school teams could provide sufficient incentive and purpose to keep good teachers in classrooms. Educational scholars at the University of Wisconsin's R and D Center under the leadership of Professor Herbert Klausmeier are conducting studies and implementing a "multi-unit" design of school organization which rely heavily upon the new roles of a "lead teacher." Work such as theirs should provide great future benefits for professional education.

Jackson (1968) justified the superficial intellectualism of teachers in part by saying at least the teachers helped youngsters overcome the impersonal and dehumanizing nature of the present-day school organization. Also, he thought if teachers were keener, more perceptive, and dissatisfied, they could not endure their work conditions, their professional shortcomings, and the organizational system.

The concept of teaching teams provides a means of abolishing oppressive school organization and expanding opportunities to foster each pupils' intellectual and emotional needs. Teachers in such units should have greater independence from the total school organization and freedom to create higher standards of professional thought and work themselves. At least team organization makes it more difficult to blame administrators and the organizational system. In traditionally structured schools, the teacher and all other teachers in a school relate as independent agents to each other and the principal. With evaluation available in fellow team members and greater control of the instructional time, facilities, and duties to be fulfilled, teachers working in teams would need to justify their work more thoroughly. Teachers would have the time they lack today to plan and relate preparation to actual teaching. Such changes would not work miracles, but it would be far more difficult for poor teaching to escape notice and establishes a more conducive setting for professional growth.

With team organization, teaching could become a more rational and innovative process, and such a change in orientation should gradually bring scholars and teachers more closely together. Instead of maintaining the status quo, schools could become producers as well as consumers of research and development. Becoming more rationally-oriented and attempting to be more proficient is not to say, however, that teaching would then become mechanical and formal. The effective aspects of teaching and learning should be retained, but the difference is they would become means as well as ends and balanced with cognitive concerns.

Educational scholars control teacher education, so they must begin the revolutionary change. They also guide graduate studies and should begin to make their master's degree programs more rigorous and meaningful as many universities have already done with doctoral studies. Almost every school has at least one or two outstanding teachers who represent the professional type this writer has had the pleasure to know as a pupil and teacher. Such persons may be found in spite of the poor teacher training, graduate programs, and school conditions that predominate today.

Educational scholars and classroom teachers need to reorient themselves to the great responsibilities of education in the United States. As Lawrence Cremin (1965) put it we need to develop a new kind of educational leader that can "spark a great public dialogue about the ends and means of education" (p. 117). Such a leader would be prepared through studies in the behavioral sciences and the humanities of education and would seem to combine many of the strengths characteristics of top present-day educational practitioners and scholars. Now, if classroom teachers and educational scholars continue to have little in common and relate as poorly as they do today, the greater blame will be the educational scholar's since he is responsible for the preparation of educational leaders. The high quality of medical education, practice, and research in the United States originates from a revolutionary overhaul of standards and curricula starting about 1910. It began when the extremely poor conditions of medical training, which necessarily determined medical practice and scholarship were realistically confronted. A similar revolution in teacher education is long overdue.

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THE TRANSLATION OF EDUCATIONAL RESEARCH AND DEVELOPMENT INTO ACTION

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Education is a very large-scale enterprise, including all of our children, all of their teachers, and a large structure of administrative officers, training and research institutions, plus a large investment in educational facilities and materials. This is commonplace knowledge, but we need to learn how to make the whole process more efficient and effective and sensitive to its social aims. The proposed National Institute of Education is an effort to achieve clarity, and the most careful planning is required if it is to serve its intended purposes. This essay represents some individual reflections on the problems of research in education as a scientific and practical problem, and some conjectures about public and private initiatives as they affect the proposed National Institute of Education.

THE RESEARCH SPECTRUM FROM BASIC THROUGH INNOVATIVE PRACTICE

There is a great deal of artificiality in the distinctions that are made between basic research, applied research, development, and dissemination, but there are some realities underlying these distinctions, and the planners of the National Institute of Education need to be aware of them. The commonest error is to assume that applied research must wait for basic research; that there must be something to apply before there can be an applied science. The whole history of technology belies this: applied progress in metallurgy, navigation, animal husbandry, and many other fields has often been ahead of basic science, and this is also true of education. This is not to deny the importance of basic science, but when one talks about a spectrum it must not be assumed that traffic is all in one direction from basic to applied; the feedbacks are complex, and practical inventions may have an important role in advancing basic science.

The realities behind the distinction between basic and applied science are of two general types, one logical and one social.

The *logical* distinction is that between a science that is primarily analytical and explanatory, leading to general theories that are parsimonious, elegeant, and of wide scope (basic science), and a science that is essentially synthetic, leading to the design of instruments or programs that serve practical ends (applied science). Either can be good science by any criteria that are set forth; but are interdependent.

The *social* distinction reflects a difference in the involvement of the investigator. Basic science tends to be self-initiated; it is very flexible, so that the investigator follows any lead that seems promising to him.

Applied science tends to be "mission-oriented," so that its tasks are set to some extent by the management of the laboratory rather than by the scientist himself. Time-pressures are different: basic science moves at its own pace; applied science is in a race with time. The rewards are different. In terms of prestige, higher prestige is usually assigned to basic science. In terms of monetary reward, the reverse may be true in some instances: basic scientists write articles for journals, usually without recompense; applied scientists may take out patents, on which they may receive royalties.

Both the logical and social distinctions produce problems for funding agencies, and the experiences of the Department of Defense, the National Institute of Mental Health, and the National Science Foundation provide relevant historical precedents that should be known as a new Institute is planned. In the past, the pressure from prestigious scientists has produced a drift toward the basic science end of the spectrum, even in mission-oriented agencies. This will have to be guarded against in the new Institute.

One serious problem that arises is how to apportion funds between basic and applied research. Applied research can be studied in some sort of cost-effectiveness terms, but basic science cannot be judged this way because its results take so long to become socially effective, and there are no guarantees implied. Other students of the problem have come to rule-of-thumb decisions, that some fraction of the total research budget, say 20 percent, should be assigned to basic research, after the total research budget has justified itself through cost-effectiveness estimates.[1] Some substantial effort at basic research is essential for two reasons: (1) basic research is the lifeblood of science, and must be supported to keep work going at the frontiers of knowledge; (2) basic research opportunities will at present attract very high-level talent, scientists who will continue to infuse into the applied research the new knowledge that comes through the informal network of communication among the basic researchers.

To make more concrete the kinds of research that can be done in education, the attached Table 1 lists seven types of research relating the psychology of learning to educational practices. The first six of these move through the most basic to the most applied; the seventh is somewhat different, because it bears upon policy rather than upon classroom teaching as such. If I were to interpret the obligations of the National Institute of Education, I would suggest very limited involvement in Type 1, for which potentials of relevance are obscure, somewhat more in Type 2, a heavy involvement in basic research of Type 3, a heavy involvement in applied research of Type 4, and considerable attention to the further steps implied in Types 5 and 6. There must be awareness that some projects must "test the limits" of innovative practice; these perhaps belong in Type 7. If there is a clear distribution of effort and prestige along the spectrum with primary obligations for technological and developmental research and for policy research, I believe that the ultimate aims can be achieved.

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[1] The proportion of funds designated as basic research in education in fiscal 1967 was 7 percent; in behavioral and social sciences outside of education it was much higher, estimated at 36 percent. See Hilgard, E. R. "The problem of R & D within behavioral and social sciences." *Journal of Research and Development in Education,* 1969, 2, Summer, 37–48.

THE RELATIONSHIP BETWEEN PUBLIC INTEREST AND PRIVATE INITIATIVE

It is possible for the translation of educational research into practice to be furthered by, or inhibited by, powerful groups outside the educational research profession. The direction that the National Institute of Education goes will necessarily have to take into account various interests, including those in the private industrial sector.

In *agriculture*, *health*, and *engineering*, despite all that the Government has done, there is a large private component, in part because of profit possibilities. All sorts of research done through the Department of Agriculture, the National Institutes of Health, the Department of Defense, NASA, eventually gets marketed as products sold by the private companies, hybrid corn, fertilizers, drugs, computers, telemetry devices. Education, too, is a fairly large industry, but its relations are somewhat different. The *industrial* contribution to education has been in (a) school buildings and furniture, (b) textbooks and other teaching aids, such as audiovisual devices, maps, etc., (c) educational and psychological tests, (d) innovative technology, as in programed materials and machines, computer assisted instruction, and (e) new managerial attempts, such as voucher systems, performance contracts, etc. Some industrial giants (IBM, Xerox, RCA, etc.) have entered the field in late years.

TABLE 1.—*Types of Research Relating the Psychology of Learning to Educational Practices*

Types of research	Relation to educational practices	Illustrative research
A. Basic science research in learning:		
Type 1	Not directly relevant to school practices: neither to the learners taught nor to the skills learned.	Animal maze learning; eyelid conditioning; influence of drugs on memory.
Type 2	Partially relevant to school practices: either to children as learners or to acquisition of desirable cognitive skills.	Human verbal learning; concept formation; tracking eye movements in reading.
Type 3	Relevant to school practices: to children as learners and to practice on school subject matters.	Mathematics learning by school-age children; prior perceptual training in learning to read.
B. Technological research and development bearing upon instruction:		
Type 4	Relevant because taught by special teacher in simulated classroom.	Computer-assisted instruction; modified alphabets for teaching initial reading; language laboratory.
Type 5	Relevant because proposals tried out in "normal" classroom with regular students and teacher.	Results of type 4 in later stages of research.
Type 6	Materials available for wide adoption.	Planning of manuals and textbooks; planning of inservice teacher training.
C. Policy research bearing upon innovations in curriculum and practices:		
Type 7	Experimental or demonstration schools showing what can succeed; "schools without walls."	Headstart program; educational TV outside the school; nongraded schools; involvement of parents and older children in instruction.

Adapted from Hilgard, E. R., Atkinson, R. C., and Atkinson, R. L. *Introduction to Psychology* (fifth edition). New York: Harcourt Brace Jovanovich, Inc., 1971, p. 511.

I believe that any new legislation will have to face seriously both the *involvement* of the private sector and the *regulation* of what is done. I am not expert in these matters, but I sense that some of the following questions must be faced early:

(1) Who may hold the copyrights (or patents) on educational materials, programs, or instruments, developed on Federal funds, but capable of being sold at a profit? The more effective the translation of research into practice, the more of these will arise.

(2) Is there any way in which *licensing* or *royalties* based on programs or products might contribute to the cost of research in the public interest?

(3) Can some equivalent of a Bureau of Standards be provided to regulate excessive claims by those who produce educational material or programs for sale to public schools? This is a touchy business, but evaluation is expensive, and cannot be assigned to local school systems.

Some instructive precedents doubtless exist. The Educational Testing Service (Princeton, N.J.) is a nonprofit corporation, but it sells its services, such as the Graduate Record Examination, and thus earns some money for its own educational research. The textbooks developed under the NSF program for improving instructional materials are available for purchase through commercial publishers; I am unfamiliar with the royalty arrangements.

Some of the practices of educational publishers have in the past acted as a detriment to educational reform. Poor shorthand systems have captured the market, and prevented better ones from being developed; the standard typewriter keyboard is an anachronism which seems invulnerable to the inroads of research. Spellers for elementary schools, designed for 15 minutes a day devoted to spelling, put great great pressure on schools to continue that practice, although it is hardly the preferred way to teach spelling. The educators who profit from the publication of educational materials are often unwitting partners to educational backwardness.

PRECEDENTS WITHIN EDUCATIONAL RESEARCH AND DEVELOPMENT

It is very difficult to learn from experience, despite our epigrams to the contrary. We have now had several years of experience with Educational Research and Development Centers supported by the Office of Education and with the Regional Laboratories, also OE supported. They are the first place to look in answer to some of the substantive questions raised in connection with a new National Institute of Education. The R & D Centers, largely within universities, presumably carry their research to prototypes, to so-called "breadboard" models. Then the Regional Laboratories take these models and refine them, preparing teaching aids and other materials so that the findings of the centers can be translated into practice. There are many lessons to be learned from the creation of these Centers and Laboratories (and earlier ventures along similar lines supported by the Kellogg Foundation). Two points emerge very strongly: (1) it takes time to build a sound organization; many of the Centers grew faster than their capacity to attract high-level personnel; (2) a client system that leads to

the adoption of proposals designed on the basis of research findings is also hard to develop, and requires skills that many investigators lack. A careful study of the impact of research upon educational practice turned out rather negative. The study, conducted by the Policy Institute of the Syracuse University Research Corporation, concluded that the products of educational research and development have thus far had very little effect on educational policies and practices, at least as *perceived* by those administratively responsible, although throughout there was a recognized need for more R & D.[2]

I am not prepared to accept the findings of the Syracuse Survey as decisive, although I am not questioning the competence of the research. For one thing, there has not been enough time. For another thing, I feel sure that teachers do things that administrative officers are unaware of. Were I to do a study, I would look for the best examples that I could find, and would then try to derive some guiding generalizations from them.[3]

I feel strongly that the Education R & D Centers and Regional Laboratories must not be allowed to fail, that the obvious criticisms be used to improve them. They are, in fact, the first models that we have of kinds of research establishments proposed for other social sciences.[4] Because the schools are more accessible to research influence than most other public agencies, if we cannot modify them through research, I do not see much hope in modifying regional governments, tax structures, or law enforcement agencies, on the basis of research.

CONCLUSION

The history of research in education is such that too much must not be expected in the way of immediate gains from it. This is hard to say for one who, like myself, is deeply committed to research. The way around this is *not* to abandon research, but to recognize that it needs to be supplemented by innovative design, and by social inventiveness.

A simple way of putting it is this:

(1) We can make immediate advances in the schools by doing more widely what we already know how to do, and what more successful schools are already doing. This is a matter of social strategy rather than of research in the ordinary sense.

(2) We should not be satisfied to do more widely what we now know how to do, but we should seek for genuine "breakthroughs," stepwise advances that will really put us ahead. Here is where imaginative research can come in, testing the limits of various proposals.

Research should not belong exclusively to trained scientific researchers. Many inventive practices are developed by teachers on the job, and if teachers are to be asked to adopt research in their practice they ought to contribute to both the research and the practice, and their contributions should be recognized.

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[2] Lindeman, J., Bailey, S. K., Berke, J.S., and Naum, L. H. *"Some Aspects of Educational Research and Development in the United States—Report for OECD Review."* Syracuse, N.Y.: Syracuse University Research Corporation, December, 1969.

[3] The National Academy of Education is proposing a modest study along these lines to be conducted in the summer of 1971 under the general title "An Examination of Problems of Effective R & D in Education." An Academy Associate will soon be appointed and supported during the summer to conduct the study under my supervision.

[4] For example, the institutes proposed in National Science Board-National Science Foundation. *Knowledge Into Action: Increasing the Nation's Use of the Social Sciences.* Washington, D.C.: NSB 69–3, 1969.

An important aspect of research that is not at all incompatible with a full recognition of the role of inventiveness and innovation is, of course, evaluation. Too little attention has been paid to the outcomes of what appear to be desirable practices, in both their immediate and their long time consequences. The more attention we pay to outcomes in relation to purposes, the more quality control we can achieve. That is an important aim of the R & D enterprise.

MEETING THE MEASUREMENT NEEDS OF EDUCATION

By WILLIAM W. TURNBULL

EDUCATIONAL TESTING SERVICE

Although Charles Dickens is not my favorite author, I should like to begin this paper by recalling to your mind those well-known lines from *A Tale of Two Cities:*

> It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity ...
>
> —Charles Dickens, 1859

If Dickens had not written those words more than 100 years ago, someone would no doubt be coining them today. For we are living in a time that combines the best with the worst, the wise with the foolish, faith with skepticism. Perhaps this is part of the human condition. Each generation (gap or no gap) tends to believe that its own era represents the most remarkable advances and the most threatening problems of any time in history. And each generation in its turn may in fact be right.

My topic—"Meeting the Measurement Needs of Education"—reminds me of Dickens' words because both education and measurement currently illustrate the paradox he implied. Despite the affluence of our society, we have not provided equal educational opportunities for all our children. Despite our success in providing examples of outstanding educational programs and sophisticated measurement techniques, we find them coexisting with substandard educational conditions and primitive measurement methods.

In approaching the topic of education's measurement needs, I should like to put forward three propositions that may suggest a strategy for meeting the needs, and then use specific examples from two particular areas of need to try to illustrate the more general points.

The first proposition may be introduced by recalling a famous scene. When Gertrude Stein was on her deathbed, it is said, Alice B. Toklas leaned toward her and whispered, "Gertrude, what is the answer?" To which Gertrude Stein whispered faintly, "Alice, what is the question?"

In some ways, educational measurement has been a collection of partial answers in search of plausibly related questions. We have had a technology—a bag of tricks—and have looked to see where it might be useful.

Those of us concerned with educational measurement have had no monopoly, certainly, on this approach. How often, for instance, have you heard educators muttering about the manufacturers of devices of all kinds from slide projectors to computers, tailored for use in a general market or a business setting, and sold to schools without modification. The fact that these gadgets work tolerably well in the schools is the justification. The fact that they do not quite fit the specific educational need, we say, is unfortunate but cannot be helped.

In the early stages of any technology, it is perhaps inevitable that we will work from our solutions to our problems. If you give a small boy a hammer, he will find that a great many things need pounding. I would propose that measurement should have passed that stage. We are now possessed of enough techniques and principles to allow us to turn with more confidence to the important real-world educational problems and tackle them, inventing new methods where they are needed to perform a satisfactory measurement function. This is not to say that we have a complete array of answers, but rather to propose that we have reached a stage at which we can and should choose the questions for their intrinsic importance rather than for their convenience of it to the answers we have.

My second proposition is rather obvious and I will not elaborate it, but will simply remind all of us that education's measurement needs in the decade of the seventies are, of course, a special subset of the needs of education itself. They will be defined by the directions in which education moves. And education's needs, in turn, reflect the changing social order in which it is embedded. Education, along with the social fabric of which it is a part, is undergoing wrenching changes in the expectations held for it and in the pressures placed upon it. The temper of the times is demanding, and the new requirements for measurement are exciting if not overwhelming.

My first two propositions, taken together, suggest that measurement people have an opportunity and a responsibility to apply their knowledge to the solution of major problems in education and, thereby, in the society at large. The importance of this moment in history is that the knowledge and techniques available were never more sophisticated, and the problems never more urgent. Meeting the measurement needs of education is not only a stimulating intellectual pursuit: it is also a social imperative.

It follows, I believe, from what I have said that the developments in measurement must be embedded in, and integral to, broad approaches to effecting change in education itself. This statement brings me to my third proposition, which is that we cannot by ourselves bring about the needed new developments. I am not in any way denying the importance of the new insights that will surely be developed within the discipline of educational measurement itself. My point is that most of the important real-world problems we are being called on to tackle will yield only to multi-faceted, multi-disciplinary attack. The problems are not rooted in any one discipline but in society and the answers will not be developed within a single discipline either. We who are working in educational research are going to have to move on education's problems in concert with the sociologists, the mathematicians, the linguists, the demographers—not simply to apply what each discipline can now bring to the problem, but to acquire new insights and devise new techniques from the interactive process.

These three propositions about a strategy for the seventies need to be examined in relation to some specific problems that are with us now and surely will not diminish. I shall concentrate on just two very large ones. The first is in the realm of assessment. The second has to do with education as it relates to the dispossessed—children in minority or poverty groups.

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I. Assessment

First, a few comments in the area of assessment. Each of us in his own way has had occasion to be acutely aware of the skepticism with which large segments of the public view the quality of education in America. A list of the categories into which the skeptics fall is frightening in the extent to which it spans the total society, sliced in different ways: intellectuals, poverty groups, radicals, liberals, students, legislators and taxpayers' groups, to name just a few.

The main points to be made about this crescendo of discontent are two. First, "quality" is in the eye of the beholder. We have made minimal progress toward defining what we want from education—or even the dimensions along which to set our target—and so we can hardly expect anything but confusion as to where we are and how satisfied we are with our position. If we could state alternative targets with some precision, we could engage in rational discourse about their respective merits and demerits. As it is, all too frequently our debates could be characterized as a semantic swamp.

Second, even if we could define educational goals specifically, and agree on targets, we are not now able to measure how close we are coming to most of them. Beyond the very simplest objectives, we have no good way to settle the bets.

Is this assessment of our condition too unflattering? Perhaps. I think it is an accurate reflection of the state of educational practice in the overwhelming majority of school districts—and states—across the country. In this respect, it is a fair description of the situation that leads to angry meetings of townspeople, after-midnight sessions of school boards, defeated school bond issues, and prematurely gray superintendents.

This is clearly a complicated, messy area but an area in which educational research and measurement can yield the crucial answers. It is an important one for us to tackle precisely because the questions are central to the concerns of a great many people in education, even though it is not one for which we have many answers at the ready. And it poses a set of issues that should be defined by educational research specialists working in concert with people from several other disciplines.

As a matter of fact, some economists are already at work on parts of the problem. And in some relatively sophisticated communities, we are seeing a confluence of economic and educational thinking. Cost-effectiveness and PPBS are the watchwords.

Cost-effectiveness concepts are to my mind both important and valid. The first-order problems are purely practical, and they have to do with measurement. Most school systems have no useful measures of the cost of specific educational programs. And they have no indices of the effectiveness of their system in attaining most of the goals the community would espouse for the schools. These are measurement problems—some of the unmet measurement needs of education.

The area of evaluation is, of course, giving new prominence and importance in measurement circles, and rightly so. At the same time, the economists are developing further a climate of thinking that is hospitable to continuing programs of assessment based on cost-effectiveness approaches. The next step should be to bring together the two

streams of development in a deliberate way—to integrate the insights of the two disciplines of economics and educational measurement to produce a new synthesis directed specifically at solving the real-life problems of school districts.

This comment may bring to mind such phenomena as performance contracting, which is currently enjoying a wave of popularity. The performance contract evaluation and audit functions are indeed examples, at a rather basic level, of areas in which our theory and technique are not very well developed. We have, for example, not done anything systematic about defining domains in which we should look for side effects or defining techniques by which we should look for them. We do not issue reports like this: "The pupils in the special contract classes have gained an average of 1.5 grade equivalents in reading during the year. They have, however, gained a negligible amount in math, their work in science has dropped back, and parents report they are refusing to do the dishes or put out the garbage unless rewarded with transistor radios." We need a much more comprehensive evaluation of the effects of educational experiments, continuous over time and embodying the broader insights of both education and economics.

Such a marriage of two disciplines is, however, only part of the need. We are interested not only in the relation between program and cost, but also in the circumstances in which educational change can occur. And these circumstances are the province not only of the educator and the economist, but of the sociologist, the urbanologist and the political scientist, to name just a few.

Let me take a minute or two to make my point more specific. I am thinking of the familiar student change model in which educational effect is measured by the amount of student growth that takes place toward a stated goal between pretesting and posttesting. The base line of expected growth is established in advance of some experimental program of education. When the experimental program is to be installed, a new pretest is given. Then the new program is carried out, and a posttest is administered. Again the educational effect is calculated as the gain between pretest and posttest. The efficacy of the experimental program is determined by whether or not the new gain under the experimental condition exceeds the normal gain under the control condition. If the cost of the experimental treatment can be determined and compared with the "normal" cost of education under the control condition, it is possible, at least in theory, to relate cost to effectiveness.

I say in theory because the complications are legion. To illustrate: it may well turn out that the experimental program worked well for one subgroup of the population and not for another. The subgroups may be fairly obvious ones—girls versus boys, younger children versus older, and so on. But who will suggest that we examine separately subgroups based on socioeconomic status or on more subtle taxonomies involving students with positive versus negative self-concept, contrasting cognitive styles, differences on a dimension of dependence-independence, or interactions among these variables? The point is that some of the most useful hypotheses may come from, say, the insights of medical people or street workers or from personality theory rather than theory of educational research. Or suppose two communities have

conducted the same experiment. In one the experimental treatment worked and in the other it did not. Why? Perhaps the nature of the school populations was markedly different in the two towns, or the community support was different or the overall educational program in which the experiment was embedded varied substantially. Just to canvass the areas in which one might look for answers that call for intercommunity comparisons suggests that we should call on the expertise of a variety of social and behavioral scientists to contribute hypotheses.

It is my belief that a continuing, long-term program of the kind I have described, drawing on the contributions of specialists from many fields, should become a standard feature of America's educational communities. Measurement is at its core, and yet it is not enough for the measurement fraternity to develop the means of assessment. Our work must be integral to a larger effort that is focused on the problem and ignores the boundaries of discipline.

II. Minority/Poverty Students

Let me turn, for my other example, to the formidable question of education's measurement needs as they relate to children of poverty and of the minority communities generally. Here, surely, we have a prime instance of a social and educational problem that commands our attention and our energies. The fact that our theory and our data are inadequate means we will tackle the problems with less precision than we would like, but again, we have to move on the problems that are important rather than on those for which our techniques are best suited. And we who are engaged in educational research cannot solve these problems by ourselves.

I should like to illustrate this thesis by looking particularly at just one aspect of the problem: devising a set of arrangements through which young people from the ghetto can pursue their education beyond high school if they want to.

This question is one to which a great deal of attention has been given by people concerned with guidance, those concerned with testing programs, those involved in college admissions, people working with curriculum, financial aid officers and research people. Their attention and their concern are warranted and valuable. The conclusion I have reached, however, is that the problem is simply not going to be solved the way we are going at it. The reason is that each of these groups is working conscientiously at its own part of the job but without a framework that embraces the other parts needed for a solution.

The fatal flaw in what we are doing is simply that the various approaches, which are individually excellent in many cases, are uncoordinated. Given time, a decade or so, progress is likely to be marked. But we do not have to wait the decade. There is an urgent need for prompt action now to bring about an early and dramatic improvement in the situation, and for new structures that will encourage future changes to take place at a significantly faster rate. It is my belief that a sweeping change is not only desirable but attainable if we mount a concerted and sustained attack on a number of fronts simultaneously, combining the efforts of the several groups concerned with the problem.

What I have in mind might be described as an interlocking, coordinated program of action in six key areas: guidance, testing, admission, financial aid, curriculum, and research. The need within each area is for special new arrangements aimed particularly at solving the problem of access for the minority group student—or for any other student whose school experience has not followed the pattern of solid academic preparation up to the point of application for college.

It is true, as I have said, that any improvement in any one of the six key areas would be worthwhile in its own right. But the problem is unlikely to be solved to any substantial degree through piecemeal efforts. From the standpoint of effective functioning, each part of the system depends on the presence of the others and in turn helps make them possible. We have here a rare opportunity to create true synergism.

Within an overall plan, there should be room for giving full scope and strong support to the excellent programs now being pursued. And there should be room for the introduction of the widest variety of innovative ideas. The important point is that if any key component is neglected, the whole system will remain ineffective. A barrier at any single point in a channel is sufficient to clog it.

The matter of broadening educational opportunities for minority group students provides, to my mind, a prime illustration of the proposition that most of the important real-world problems we are being called on to tackle will yield only to multi-faceted, multi-disciplinary attack.

The system I am envisioning would rest on a strong and active program of guidance, to help identify and encourage students who would profit from higher education. It would be desirable to have a large number of guidance centers—perhaps 100—throughout the country, related to but not confined to the big cities, to work wholly on the problem of guidance for students from backgrounds of poverty.

It will be pointed out that such guidance is already going on through the schools. True. But it is no secret that guidance resources are spread very thin in the urban schools, and school guidance people would be the first to applaud a strong effort to develop a companion system with which they could work: one with the specialized aim of college access for children of poverty and of the minority communities. It is true also that there are already agencies such as SEEK, Upward Bound, Project Access and others already in being to complement and extend what the schools are doing. A comprehensive system, if it were established, should not compete with such programs but should provide cooperation, support and coordination, where coordination might be helpful and welcomed. The need is to see to it that the various areas of the country are covered systematically with guidance centers focussed on college-going for needy students and those who have special problems centered on race.

In the beginning, the guidance centers would naturally be concerned with students nearing the point of transition from school to college. As the program moved ahead, however, they could be expected to work with children at earlier points in their schooling. By Grade 12, of course, the door to college may have been effectively closed by inadvertent early decisions unless a student has been actively encouraged to keep it open.

Let me sketch briefly the kind of testing pattern I should like to see for these students as they approach entrance to college. The emphasis of the test program should be on helping the student and his counselors understand the range and variety of his abilities and interests, the kinds of college-level work that he might pursue successfully, and the additional preparaton he might need to pursue goals for which his training to date had not been adequate. The tests could be taken by any student on a walk-in basis at a guidance center and the interest measures could be completed at home. Practice forms of all materials would be available to all students. Conventional numerical reports would be supplemented by verbal reports that would interpret the numerical record and relate it to the student's interests and educational goals as he expressed them.

All results would be reported first to the student and to the guiadnce center. They would be reported to any college upon the student's request *after* he had had an opportunity to review them and discuss them with his counselors. If the student so requested, his results would be erased completely and never reported.

Accompanying the guidance-oriented testing program for students would be a systematic program through which post-secondary institutions would gather and publish comprehensive descriptions of themselves for the benefit of prospective students.

I have touched on only two of the six components that I think are needed in a comprehensive system for minority students: guidance and testing. Beyond them are four others, which I shall simply mention once again, although each merits extended treatment:

Admissions arrangements entered into cooperatively by groups of colleges and the guidance counseling centers, designed to bring about the most successful match between the students and the institutions of higher education.

Financial aid in substantial amounts, since it is worse than useless to raise the aspirations of students from backgrounds of poverty if there is no practical way for them to realize their ambitions.

Curriculum study and change, both in school and in college, to provide experiences that will keep the student involved in his studies in school and provide him with a college experience that relates to his interests and abilities at the post-secondary level.

Research, development and evaluation to be conducted continuously on all aspects of the working system in order to improve it as rapidly as possible and to ensure its continual responsiveness to changes on the educational scene.

I have dwelt at some length on this conception of a single program for needy students, minority group students and those whose preparation is weak, and have done so for two reasons. The first is that it illustrates my main thesis: If we are going to tackle large educational and social problems with any hope of success, we will have to see the measurement job as just one element in a much larger whole that should be conceptualized and attacked in its entirety. In so doing, we will have to work with many people outside the educational research fraternity—politicians, college administrators, guidance counselors, federal officials, organized minority groups, and so on—to weld a coalition of people who are willing to contribute their special knowl-

edge to a common set of purposes. My second reason for outlining the concept is my personal belief that a development of this kind, while ambitious perhaps, is feasible, necessary, and overdue.

III. The Measurement Man's Future Role

In facing the issue of meeting education's measurement needs, I have chosen to look at two such needs in depth rather than to attempt a catalog of what ought to be done. Measurement needs are integral to education's needs. Increasingly, they will be met as we mount successful overall systems of educational reform in which the measurement component is embedded.

In this conception, measurement is not a self-sufficient act. It is part and parcel of efforts to effect educational change. And it is at the heart of many of these efforts. One might say, however, that the measurement person's job will become much harder as it becomes more central. This is so in two respects. First, as measurement assumes a central role in more sophisticated systems, we are going to see the fulfillment of E. B. White's prediction that there is a bright future for complexity. As complexity increases, the job of making the results of measurement readily understandable, and resistant to misunderstanding and misuse, will increase. This is an area where we have been less than resoundingly successful in the past and where redoubled effort will be essential. Second, a special obligation is placed on the measurement person if we say that the measurement job is not over until the results have been analyzed, simplified, interpreted and put to use. I believe there is no such thing as good measurement that has not been used.

Alfred North Whitehead said, "The vigor of civilized societies is preserved by the widespread sense that high aims are worthwhile."[1] In meeting the measurement needs of education, if we aim high, we may be able to provide the ingredients that are critical in meeting some of the most important needs of education and in so doing help preserve the vigor of the larger society.

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[1] Whitehead, A. N., *Adventures of Ideas* (Cambridge University Press, or The Macmillan Co., New York, 1933) p. 371.

AN OVERVIEW OF INDIVIDUALIZED INSTRUCTION

By JACK V. EDLING

People differ in their abilities, interests, aptitudes, attitudes, values, achievements and personalities. They also differ in their physical size, energy, coordination, strength, aggressiveness, and health. Perhaps more important, they differ in their self-concept, desire to learn, cultural heritage, and view of the world. And new evidence indicates the degree of these differences greatly exceeds earlier estimates.

Yet most schools are organized as if the only educationally meaningful differences were age and perhaps sex. Teacher education institutions talk about individual differences, but most frequently all they suggest doing about them is to group children according to their "ability", and to urge teachers to have greater tolerance for those experiencing difficulties. Thus, many schools provide for learner differences in the lower grades by grouping "slow" readers, "fast" readers, etc., and in the upper grades by providing some curriculum choices such as home economics for girls and shop or mechanics for boys. All "complete" school in twelve years whether they read at the first grade level, or exceed in achievement a sizeable number of college graduates.

Today a growing number of educators believe that if our dreams for an optimum education for each child are ever to be realized, more consideration must be given to both objectives and methods of instruction for individual learners. In the recent past teachers and parents have believed that one teacher with twenty, thirty, or more pupils approximately of the same age, was precluded from anything but group instruction. Even when individual "projects" were assigned they were all due on the same date. After all, any other arrangement would be considered, if not un-American, at least unfair! However, it should be noted that an earlier situation created the belief that one teacher (in a one-room school) could and should handle all ages and subjects. It may be that the recent concern for individuals is the result more of new instructional capabilities than a new philosophy of education. There are new capabilities, capabilities greatly enhanced by federal programs which encourage experimentation and the more effective use of teaching personnel supported by the appropriate use of instructional technology.

Characteristics of Individualized Instruction

While some observers will see nothing new in the individualization of instruction and think of it primarily as a return to the values and style of an earlier America, it really is very different. In the one room school the teacher, with very limited resources, tried to do the best he could to help each child learn basic skills for acquiring knowledge and solving problems as well as a number of "facts" considered useful. The present image of individualized instruction is

quite different with reference to both objectives and instruction methods. We now find young people programming computers, conducting advanced research in the physical, life and behavioral sciences, designing and producing advanced technological products, and discussing problems and developing proposed solutions to some of the most complex social issues. Instructional methods are as varied as technology itself, and are based on findings from advanced research on human learning and ecology.

Despite its complexity in actual practice, the principles of individualization are readily understandable. There are two basic characteristics of all individualized instruction which differentiates it from "group" instruction. First, the instruction is *oriented* (i.e., designed, planned, intended for, administered, etc.) for individuals, not groups. This orientation has many implications, but primarily it means *many* more small units, or modules, of instruction which can be organized in infinite variety. Second, the instruction is *paced* for individuals, not groups. This means in essence that to really learn something is more important than to adhere to a schedule. It does not mean that an individual can just "loaf on the job", rather it means that the time allocated to learn something takes into consideration the learner's ability and the other things he is trying to learn.

In addition to these two basic characteristics, there are different roles for teachers and learners to play in the instructional process which result in different kinds or types of individualized instruction. An easy way to understand these different types is to draw a distinction between what the school, or the teacher, on the one hand wants the young person to learn, as contrasted with what the young person himself wants to learn. This means that there are some objectives which the school believes all young people should learn, and there are some objectives which should be limited, or even unique, for learners with special abilities, interests, aptitudes or handicaps. In a similar distinction, the school believes that it should decide the best way to learn certain of those objectives, while in other instances it might be better and more efficient to give learners a choice! These distinctions can be seen in the following diagram:

Types of Individualized Instruction—Objectives

Methods or media of instruction	School determined	Learner selected
School determined	Type A: Individually diagnosed and prescribed.	Type C: Personalized.
Learner selected	Type B: Self-directed	Type D: Independent study.

Since these different types of individualized instruction each serve different purposes, a brief explanation of the nature of each type will be helpful in understanding the potentialities for individualized instruction to improve educational opportunities.

In type A, the school specifies what is to be learned and the methods which research or experience has shown to be most effective for most

people to learn. This type of individualized instruction is most frequently used by learners of average or below average ability for learning basic skills in language arts and mathematics. Each learner is *diagnosed*, i.e. tested or interviewed to learn his readiness to undertake a specific learning objective and is then *prescribed*, i.e. assigned the particular set of materials or learning tasks that will give him the explanation and practice he needs to demonstrate that he has, in fact, mastered the specific learning objective.

Type B may be called *self-directed* because the learner is provided a wide range of instructional media and materials and may use them as he chooses to learn. Again, this type of instruction is used frequently for learning basic skills in language arts and mathematics but more often by learners of *above* average motivation and ability. Experienced teachers believe that some children learn best by listening, others by seeing or reading; some learn best by working alone, others need companionship; some like long-term activities, others like a constant variety. These differences are called learning styles or strategies, and some teachers believe that when a child is not afforded the opportunity to develop his own learning strategy he is missing one of the most fundamental of all learning experiences. Learning how to learn by oneself, learning to be a self-directed learner, is as important to these teachers as is learning a particular skill or fact. But unfortunately it is not very effective for the child of low ability or motivation who needs, and wants, all the guidance and help he can get.

Type C may be called *personalized* because the learner selects learning goals which are more related to *his* values and needs. Here again, however, the school through the teacher provides considerable guidance and help to average or below average learners in how to reach those particular goals which have been selected. While this type of individualized instruction is most frequently found in elective subjects it is common in the social studies and sciences because these subjects are so comprehensive, and new knowledge is expending so rapidly, that there is little agreement even among experts as to what constitutes a "required" curriculum. By allowing students to select objectives the school has increased its relevance and effectiveness in teaching these subjects.

Type D represented a kind of ultimate in individualization and, in the minds of many educators, should be the goal of all education—to produce an independent, lifelong learner. In order to develop such a person there is a growing belief that the learner must have a very active role in his own learning processes. Again, experience has shown that both selecting objectives and determining the means to reach those objectives are not tasks for which all young people are qualified. But there are more capable and creative students available to learn such skills than are currently being afforded the opportunity to learn them. This tragedy has resulted in some of the most academically qualified young rejecting not only formal education but also the society which supports it.

In describing the four basic types of individualized instructional programs the impression may have been given that a particular school uses one type of program to the exclusion of others. This is not the case. The essential point is that there are several approaches to individualizing instruction and that each, and various combinations, have been implemented successfully in varying situations.

Evidence on the effects of indicidualization

One of the major tasks facing the profession of education is the development of valid cost-effectiveness evaluation methods and procedures. Current attempts leave much to be desired. However, within the limits of existing knowledge some rather extensive efforts have been made to determine the effects of individualization. These attempts may be classified under four general headings (1) formal test evidence, (2) participant reaction, (3) disciplinary records, and (4) truancy and drop-out rates. Each of these will be reviewed briefly.

Formal test evidence has one crucial disadvantage: the tests used to compare individualized programs with traditional group-oriented programs may not be directly related to what is taught in either program. The development of a standardized achievement test is a rather major project. It involves the identification of a body of knowledge and a population of learners, and representative samplings from both. The assumption must then be made that schools which use the resulting test(s) have taught the same body of knowledge and that their population of learners is comparable to the sample used in developing the test. There are many other problems such as when the test is administered (i.e., have the learners had equal time to learn) and the conditions under which the test(s) are administered. Seldom are all assumptions met and conditions adequately controlled. Nevertheless, school administrators and boards need some evidence as to how well their students perform on these standardized measures of basic skills.

A summary of seventeen (17) studies reveals that in four (4) instances there were no statistically significant differences found in achievement between comparable individualized and traditional group-oriented programs. In thirteen (13) instances statistically significant differences were found, and all favored the individualized programs. From available evidence one would most likely conclude that there will be no loss in achievement as measured by standardized tests as a result of individualizing instructional programs and that in many instances there will be gains. However, it must be emphasized that in most individualized programs the objective was *not* to increase achievement as measured by these tests. Objectives ranged from increasing the scope of the curriculum in order to meet the needs of more young people, to promoting optimum individual development whether it be social, emotional, physical or just plain liking school and learning more.

The more informal reactions of participants, i.e., teachers, learners, administrators and policy makers may be even less scientifically rigorous, but much more important politically in terms of support of schools. Teacher reaction, almost universally, is that there is more work involved in both initiating and maintaining an individualized instructional program. At the same time they report, almost universally, that they have never been more satisfied with what they are doing for their students, and that they could never, in good conscience, return to a traditional group-oriented instructional program. Yet, there are some teachers, especially those who have a strong subject-matter orientation, who do not feel comfortable with every student working on a different task. In fairness to these teachers it should be stated that had they been given additional training and support services and materials their reactions might have been different.

Many schools have conducted student surveys to determine their reactions. As one would suspect, student reaction is practically all positive. Like their teachers, many think it involves more work, but in the words of one student, "this way you don't have to spend a lot of time studying something you're not interested in, you can specialize in a field and study it more." Most schools report, however, that a small proportion of students, usually less than five percent, and sometimes less than one percent, try to take unfair advantage of the fact that they have greater freedom. The report is most frequently heard at the secondary level after young people have learned to expect to be told day-by-day and hour-by-hour what to do.

The most exciting evidence of the effects of individualization on students is seen in the products they create. One example among thousands is the case of a farm boy in a small high school in Colorado. The school's program had been individualized and when prescribed objectives had been completed students were free to work on their own selected objectives. The school's principal stated, "this arrangement results in about half of a student's time being turned back to him to learn what he wants to learn." This particular student undertook the design and construction of a cattle trailer to be used on his father's farm. The writer saw the finished product and it was truly remarkable. The instructor stated that the retail value was approximately six thousand dollars. The young man, using the school's tools, welding gear, etc. and his instructor's guidance, had built it for less than two thousand dollars.

Even more important the proud builder stated, "I didn't know what I was going to do when I graduated from high school but now I've been lined up with a scholarship at Colorado State in mechanical engineering, and it really looks like a good deal. I wonder what I'd be doing, if I would have had to sit through seven fifty-minute periods waiting for the bell to ring?"

All over the country in individualized programs students are working on projects which make "school" into a different kind of place—"I wondered how we could control the weeds in our farm plants," I really understand computers and know how to program them" "I'm studying brain functioning and it's fascinating." A principal in Texas stated, "We have cases where children come into this school with a phobia against school. They hate school so much they may be on tranquilizers so they can endure it; after this kind of program, this disappears."

Parent reaction to individualized instruction is often skeptical, especially when first informed of it. The concern is that it will not be as good as a more rigid, structured program. However, the attitude seems to dissipate rather rapidly as a result of student enthusiasm. The major exception is the parent of the student who has a record of difficulty. The new program is unlikely to make an immediate difference in the behavior of any young person who is disturbed or psychologically immature. But there is a big difference now. There is a new program. To this parent the cause of the child's problem is obvious. The parent has something to point at, something which explains all the child's difficulties; obviously, the new program. For this reason, many school administrators are making changes slowly, making no announcements, avoiding publicity and labels, and keeping parents

informed by involving them in helpful, constructive ways to improve their programs.

Disciplinary records provide evidence that individualizing instructional programs results in a dramatic decrease in common disciplinary problems. Traditional group-oriented programs which emphasize homework, being quiet for extended periods, staying in one's seat, and generally having one's behavior controlled result in frustrations which lead to disciplinary problems. In individualized programs most students are so involved in what they are doing that those problem students who try to get attention by causing disruptions are largely ignored. When there is no "pay-off" or reward for disruptions such behavior tends to wane. This is a phenomenon reported in school after school where programs have been individualized.

Truancy and drop-out records are surprisingly difficult to interpret. For example, a given student may be listed as a drop-out for three consecutive years. The situation, of course, is that he drops out, i.e., stops going to school for the remainder, or part, of the school year but then he decides to return at a later date. Despite these record keeping problems school administrators report that since individualizing their program there is a marked reduction in both truancy and drop-out. They generally attribute the less rigid atmosphere and more relevant curriculum to their increased holding power.

Two Major Concerns

School administrators state that there are really only two major obstacles slowing the general adoption of the concept of individualization. Perhaps surprisingly, operational monies is *not* one of the obstacles. In fact, a majority of administrators believe that once the transition to an individualized program is made, it may be a partial solution to spiralling school costs because it provides an opportunity for more efficient utilization of teachers and support personnel. While traditional instruction places emphasis on student-teacher ratio, individualized instruction places increased emphasis on student self-direction, instructional technology and appropriate use of paraprofessionals. The major concerns of administrators are teacher re-training and obtaining effective instructional materials.

Teachers trained to handle a group of thirty, or to lecture extensively on a body of knowledge, are ill-equipped to diagnose the needs of individuals and to provide appropriate consultant help. These teachers are observed lecturing to individuals as if they were a group of thirty! Their relationships with young people are often formal and impersonal. They are not broadly informed on the wide range of available learning strategies, media and materials. Most important of all, they do not understand the basic philosophy of individual human growth and development.

While there are vast quantities of instructional materials, most are not designed for use in individualized programs. In individualized programs all over the country, teachers, paraprofessionals and parents are taking apart textbooks, workbooks, magazines and even films and newspapers and arranging them into single-concept modules or units with appropriate identification and cataloguing. Often modules are grouped into a learning "package" usually consisting of a statement of what the learner should be able to do when the assignment has been completed, sample test items, a list of all available related modules or

units and suggestions as to how to proceed. Materials developed by the Learning Research and Development Center at the University of Pittsburgh, Research for Better Schools, Inc. in Philadelphia, and the American Institutes for Research of Palo Alto, California are examples of materials specifically designed to support individualized instruction. These materials have been tested, and include tests useful in both diagnosis and evaluation. While they greatly facilitate the individualization of instruction, much additional development is essential to meet the needs of more learners.

Implications for a National Institute of Education

This nation has no educational task more important than developing instructional systems in which every individual receives an education designed for him rather than for someone else. *The Preliminary Plan for the Proposed National Institute of Education* (Draft) published by the Rand Corporation has some useful data, but it avoids commitment to any specific task. I believe that the purpose of the NIE should be to promote the development of these fundamentally different systems. It should not be as the present bill proposes "to conduct and support educational research . . . etc." The present proposed legislation and Preliminary Plan would result in the same kind of diffused efforts which characterize other broadly worded legislation and policy directives.

Each state has legal responsibility for its educational program. The NIE working cooperatively with the state educational agencies could help each of them develop systems appropriate for their particular requirements. The recommendation of the *Commission on Instructional Technology* relating to "a diversity of approaches" cannot be emphasized too strongly. However, the point to be emphasized here is that *development* of new programs to provide education for individuals should occur first and should be the initial thrust of the NIE. "To conduct and support educational research and disseminate educational research findings throughout the nation; to train individuals in educational research, . . . to construct or provide for necessary facilities" etc. in the context of the present generally ineffective educational system would be equivalent "to conducting research on buggy whips."

After significant change has taken place in the form of education, then extensive evaluation will be necessary. New questions will be raised as the result of problems created by the new systems. This will be the time to phase-in a major research thrust. Obviously, in some states dissemination, training, applied research, technological assistance etc. will be required from the very beginning. But, these are *means* to assist in the development of more effective educational systems, and not *ends* in themselves. The legislation must not permit the proliferation of every kind of research, development, diffusion, and evaluation activity that can be "sold" to the director or his staff by sophisticated "grantsmanship".

Stated in a less dramatic way, extensive development is now both possible and necessary before meaningful evaluation can take place. When meaningful evaluation has taken place, then it will be both necessary and productive to undertake research and further development to improve deficient systems. It will do little good to do additional

research now on measurement, compensatory education, reading, television, etc. when we have already supported every idea for research that the present context of education has suggested. What is needed now is a major effort in one direction that holds great promise. With a clear goal, effective management, and adequate support the National Institute of Education could, in time, make a significant difference in everyone's life and help assure the ascendancy of all mankind.

STATEWIDE ASSESSMENT: ITS FUTURE AND POTENTIAL FOR EDUCATIONAL REFORM

By HENRY S. DYER AND ROBERT J. SOLOMON

When one considers the faith which Americans place in education, it is amazing that the concept of statewide assessment is such a relatively new development. From the beginning, Americans have seen education as an instrument for social progress. "If a nation," wrote Thomas Jefferson, "expects to be ignorant and free in a state of civilization, it expects what never was and never will be."

From the beginning, too, and increasingly with each new generation, American education has become a public (and in this sense, political) enterprise supported by a complex body of laws, particularly state laws, designed to give social sanction and encouragement to education, and supported by large and increasing amounts of public funds, particularly state and local funds. And as our concept of a democratic society has expanded and our needs as a society have multiplied, so too have our expectations with regard to who is to be educated and what is to be achieved.

In a society where education is everybody's business, the adequacy of that system also becomes everybody's business. As Bressler and Tumin [1] have observed, "The high visibility of the educational system and its governance, which underlies the public accountability of that system, also makes possible the constant confrontation . . . by relevant publics, such as parents and employers, of the "outcomes" of that system, as they personally encounter those outcomes in the form of their children and their employees."

If Americans today were satisfied with their society, if they were united in their perception of social priorities, and if they felt reasonably secure about their power to shape and control the future, there would probably be less concern today with assessment. But under the circumstances, it is not surprising that an institution which is so political, in the larger sense of that term—that is, how we govern ourselves to achieve our social goals—should come under increasing scrutiny from those on the left, the right, and the middle who feel a need to know *what* the schools are accomplishing, *why* they are accomplishing or not accomplishing, and *how* their accomplishments can be improved. In short, if education is the instrument of social progress then those who are dissatisfied for one reason or another with the present fruits of "progress" see assessment as a means to determine what has been happening and, ultimately, what should happen in the schools.

This is the motivation that underlay the Equal Educational Opportunities Survey (the Coleman Report), which is a landmark study in American education not for its findings, which are nevertheless

[1] Marvin Bressler and Melvin Tumin. *Evaluation of the Effectiveness of Educational Systems*, Final Report, USOE Cooperative Research Project No. 6-2023, April 1969.

noteworthy, but for the questions it asked. And it is also the motivation for the National Assessment project and for the recent efforts in the states of Pennsylvania, New York, and Michigan.

Also, although there are differences—for example, the Pennsylvania project is more explicitly tied to a carefully developed public statement of the goals of quality education—all of these statewide assessments are concerned with certain functional relationships among three sets of variables: student input, student output, and the environmental conditions affecting student learning and behavior. Although everyone involved in these projects appreciates the relative primitiveness of the present state of the assessment art and is aware of the measurement techniques that remain to be developed and refined, these projects are an improvement over earlier, cruder approaches.

One traditional approach has been to examine the quality of an educational system by taking a census of such things as the number of books in the library, the age of the school plant, the pupil-teacher ratio, the number of hours of per-pupil instruction, etc. The trouble with this approach to the assessment of system performance is that it traps too many people into confusing means with ends. It rivets attention on the instrumentalities of education without raising the question whether the instrumentalities—the books, the building, the teachers, the length of the school day—are having any impact on the intellectual, social, or personal development of students. (It is interesting to note parenthetically that opposition to the Coleman study *increased* as some schoolmen realize that this census-like approach was not to be its primary concern.)

Another traditional approach has been to measure the effectiveness of educational systems by comparing the average of the test scores of pupils in a system with some sort of national average or norm. Such statements as, "School X is better than school Y because the fifth-grade children in X are reading at grade level 6.2 while those in Y are reading at grade level 4.5," raise more questions than they seem to answer. It's no wonder that some of those committed to improving education for minority/poverty children perceive system-wide testing programs as a threat. It is unfortunate that many educators even now fail to grasp the fairly obvious principle that you cannot tell anything about how a system, or any phase of it, is functioning by looking about how a system, or any phase of it, is functioning by looking solely at what the students are like as they emerge from it. You have to have at least two additional kinds of information before you can even begin to know how well the schools are doing. You have to know what relationships may exist between the characteristics of the students as they come out of any phase of their schooling and the characteristics with which they enter that phase. You also have to know about the factors outside the school, in the home and in the community, that may facilitate or impede what happens in school.

Also, and this is the most difficult problem of all, you have to know, if you are to have any hope of improving the system, what goes on *inside* the system that is educationally productive. Ultimately, we need to be able to answer the question: What educational processes work in what kinds of schools for what kinds of kids?

In addition to providing the means to answer this ultimate question, there are several other purposes to which the assessment process itself

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should be addressed. These purposes may not be ends in themselves but

There are six main purposes that a statewide assessment should serve. suggest some conditions for the design and dissemination of results.

There are six main purposes that a statewide assessment should serve. Each of them is addressed to a different audience. They are, as follows, not necessarily in their order of importance:

1. The assessment should provide the teachers and administrators in every school system with basic information for assessing the effectiveness of all the principal phases of their educational programs in sufficient detail to indicate the specific steps required for continually strengthening those programs.

There are at least two fallacies that make local education authorities resistant to having the state authority assess the performance of their schools. One is the notion that a state program of tests, questionnaires, and other measures, necessarily infringes on the freedom of local authorities to experiment with new curricula and methods of operation. The other is the notion that a local educational system can assess its own performance without any reference to the performance of other systems. Both notions are wrong. A statewide program of evaluation services, properly designed, does not have to interfere with the autonomy of local systems. At the same time, it seems clearly impossible for a local school system to secure a satisfactory reading on the effectiveness of its performance unless it has access to data that will enable it to compare its effectiveness with that of other systems that are operating in similar circumstances. The collection and organization of data to make such refined comparisons truly valid is no small task, but it is one that had better be tackled soon if we are to avoid the simplistic comparisons that now bedevil us.

Many school people are likely to be fearful that a statewide assessment program resulting in comparative performance data on the pupils in each school or school system will concentrate only on easily testable qualities and will thus leave out of account many factors in pupil growth (sense of personal worth, social adaptability, vocational effectiveness, etc.) which the schools rightly consider, or say they consider, important. This fear is not groundless, since measures of personal-social development which are both acceptable and efficient are hard to come by. It is for this reason that in working out the content of an assessment program the development of ways to measure these difficult-to-measure factors should be prominent in the planning effort at the very outset.

2. The assessment should provide the state education authority with basic information needed for allocating state funds and professional services in a manner best calculated to equalize educational opportunities for all children in all school systems of the state.

State authorities have the responsibility to provide a rational distribution of the funds and services tailored to the specific needs of each local school system. This implies a form of categorical aid but not in the usual sense of the term. Instead, the categories in which state aid is administered could vary from one school system to another depending on what the assessment shows about the special problems of each school system. The emphasis would be on using assessment results as a basis for developing state funds and services so as to maximize the de-

velopment of every child in the state rather than merely to provide that each child shall attain some minimum level of competence.

The next two are closely related.

3. The assessment should provide research agencies at both the state and local levels with data for generating and testing hypotheses concerning the improvement of all aspects of the educational process.

4. The assessment should provide every school system with strong incentives to experiment, under controlled conditions, with new and promising educational programs, materials, devices, and organizational arrangements.

Unless a statewide evaluation program encompasses these two purposes, there is the danger that the entire educational enterprise in the state will become stuck on dead-center. An important function of the data issuing from the evaluation program is to generate promising hypotheses to be tested through educational research. Thus, the assessment system becomes an important, indeed an indispensable, stimulator of promising new educational ideas to be tried out by the schools. It is also an indispensable basis for determining the extent to which the hoped-for effects of innovative practices are being realized. No small problem, however, is the perennial need to find somehow more effective ways to tie back research findings to school practices.

5. The assessment should periodically provide the state legislature and the general public with readily interpretable information concerning the progress of the state system of education as a whole and of each local system.

The maintenance of sound educational programs requires the support of the citizens. Not only do they have a right to a periodic accounting of the educational benefits their tax dollars are buying; their support for more effective educational programs is likely to be somewhat less than enthusiastic unless such accounting is regularly forthcoming in terms that can be readily understood.

The sixth purpose, in our view, deserves the highest priority. We have left it for last because although it comes closest to what education is all about, it is the most difficult.

6. The assessment program should provide basic information for helping every student in the state assess his own progress through the educational systems of the state, so that he can become increasingly mature in understanding himself, his educational needs, and his future possibilities.

The prime focus of the assessment program should ultimately be on the individual student. It should give him the means for developing some order in his experience inside and outside of school. It should furnish him with the information he needs to work out his own personal and career goals and to chart his way toward them through the complex network of autonomous school systems that make up the state system.

A central fact of the educational enterprise that is often overlooked is the high mobility of the student population. Pupils—all pupils—are continually shifting from one teacher to another, from one grade to another, from one school to another, and from one school system to another. They are thus constantly having to adapt to changing educa-

tional environments, each with its own objectives, values, standards, and ways of doing things.

Since this is the case, one of the student's primary educational needs is for some intelligible indication of how he is doing and how he can do better. He needs a means for evaluating his own learning periodically. The first concern of a statewide assessment program should be to supply this common source of information for every student in the state. The instruments and procedures for meeting this educational need of individual students are far from clear at the present time. But that the need is real and urgent seems unquestionable. The responsibility for meeting the need must rest with the state education authority if it is to be met at all.

The future and potential for statewide assessment are tremendous. So are the problems.

SOCIAL ACCOUNTING IN EDUCATION: REFLECTIONS ON SUPPLY AND DEMAND

By DAVID K. COHEN

The Issues

The purposes of information systems in education are no different from the aims of social accounting in health or welfare. The systems are regarded as ways to make planning more rational and government more accountable, by monitoring individual behavior and institutional performance. The underlying notion is that better information would improve the management of public institutions, make delivery of service more effective, render the production of benefits more efficient, and increase consumer power.

Given these similarities, it is no surprise to find that the political problems in social accounting are quite uniform. To judge from the last five years' debate there are two chief issues: new information systems might further reduce the limits of privacy; and institutions might successfully resist the collection of data on their performance.

In education, more attention has been focused on the second problem. In part this has occurred simply by default. Children are accorded an almost entirely dependent status in the United States, and the ascription of such status naturally reduces concern about the protection of personal freedoms and civil rights. Because children are regarded as incomplete members of the polity, public institutions are permitted to probe their performance and regiment their behavior to a degree unthinkable in adult civilian society. The absence of much concern about the impact of educational information systems on the privacy of persons only reflects this attitude.

The other reason why most attention has been focused on the resistance to social accounting in education is that the resistance has been front-page news. Both the National Assessment of Education Progress and the *Equality of Educational Opportunity Survey* foreshadow social accounting in the schools, and both cases generated lively controversy. Local non-participation in the *Equality of Educational Opportunity Survey* was massive, and there was rather a nasty struggle over the content and objectives of the National Assessment. Both controversies revealed an unmistakable resistance to scrutiny on the part of the public schools. This helped to solidify the impression that the major barrier to effective social accounting in education is getting the systems established.

This notion is consistent with most of the assumptions that underlie the movement for social indicators. Chief among these is the view that one of the principal obstacles to better institutional performance [1] is the absence of adequate planning, and of an adequate information base

[1] This may involve effectiveness, efficiency, or better management. In a paper this general, there is no need to distinguish among them.

for such planning. While no one who has thought seriously about social accounts would minimize the barriers to their establishment, almost everyone seems to believe that if information were available it would be a major force for change. This, in turn, rests on the view that information on institutional performance has or could have an important influence on decisions.

No one could doubt that lack of information is an obstacle to change—but is it central? Is there any evidence that the schools would use the results that information systems spew forth? Do we suffer from a short supply of information or from a minimal demand for it?

I strongly suspect it is the latter. The deepest political problems in social accounting probably lie on the side of demand and consumption, not on the side of supply. On the schools' part, this arises from the fact that they are really not geared to utilize information on institutional performance. The organizations' incentives and structure rest upon other values. The schools' resistance to the Coleman Survey or the National Assessment was only one symptom of their underlying inability and unwillingness to utilize such information.

But the matter reaches well beyond the schools, to the general problems of information use in the political process. Most discussions of social accounting in education seem to assume that the output would serve both as political intelligence for the populace and management intelligence for the institutions. It certainly is true that the systems seek to improve management and "production" within government and to increase its political accountability. By itself, would information accomplish either end?

Perhaps not. One might argue, for example, that the effect of these systems would be to only further clog the channels of political intelligence, and weaken the links between school managers and their constituents. After all, while the revolutions in communication technology have vastly increased the amount of available information, there have been no comparable innovations in its social consumption, especially in public life. How is the deepening sea of information to be organized, interpreted, and brought to bear on decisions about the use of public resources? The established school interest groups have some capacity to utilize information, because of their organizational resources. But what of the citizenry, which is supposed to govern education? Will more information make them even more dependent on the existing institutions, and further weaken their independent power as consumers, clients, and constituents? Will it not strengthen the power of managerial elites at the expense of democratic control? Will increasing the information flow further contribute to the growing sense of mystification, estrangement, and imperviousness which surrounds our institutions? Or to widening the disparity between the ability of affluent and poor people to cope with public institutions? These issues have not been probed.

My view, then, is that the two central political problems of social accounting in education are the dramatic absence of much institutional demand for the information, and the lack of much consumer capacity to manage, control, or digest the products of social accounting. The most important issue is not how to establish new information systems, but how to assure that the systems' products would have some other purpose than the amusement and occupation of people like ourselves.

The remainder of this essay amplifies these ideas. First, I explore the relative importance of demand and supply. Second, I speculate on the consequences of creating major new sources of information supply when demand is minimal and consumers' utilization capacity is nearly absent. Third, I try to identify and evaluate the main alternatives that might increase demand, and the capacity to utilize information.

In all this several important political issues—or issues with political import—are either ignored or treated in passing. One is the question of what utilization of social intelligence might reasonably be expected from institutions and consumers, in a large and diverse society. There is no more important issue than this, because these expectations are the basis for judgments that particular institutions work well or poorly. Although I have little doubt that in education they work poorly, much more thought will be required before we can talk sensibly about how much better they ought to become.

A second issue has to do with the technological viability of social accounting in education. What would be measured, and why? If the essential outlines of the learning and socialization processes were known—in economists' terms, the educational production function—this would be less difficult. But we do not know this, which leaves the awkward problem of deciding to measure things on the basis of either expert opinion or social consensus. There are many potential benefits, of course, in having recurring measures of status and change, even on those things we only *think* are important. But there also may be serious disadvantages. Suppose an information system turned up a considerable number of inequalities in some educational "input," and as a result much time, effort, and money was spent equalizing the differences. But is this worth it, if the inputs later were found to be unimportant? Or, to put the problem more broadly: what we measure in a national information system on schools will assume enormous importance, simply because it is being measured. Does it make sense to accord such political status to information whose real importance is dubious or unknown?

I raise these issues only to indicate that any full assessment of the political problems with social indicators in education should consider them. Unhappily, space constraints mean that I must pass over them for the time being, in order to attend to the more general issues of supply and demand.

THE ABSENCE OF DEMAND

What would be required to show that I am incorrect, and that the main problem was supply, not demand? One important line of evidence would be repeated examples that the schools have employed available information to improve their performances, or created the necessary deta. If such cases could be turned up, we would also be able to identify those elements in the public schools' organization that impell them to utilize information as a means of self-correction.

Nothing of the sort seems to be possible, however. To begin with, there is little evidence that the public schools utilize information on their own performances to improve operations. The most impressive example of this arises from contrasts between the history of schools' "improvement" during the last four or five decades, and the history of research on the effects of these improvements.

Ever since the turn of the century, the growth of American education has rested on the premise of some identity between the interests of the school professionals and students. The history of the last half-century in education might well be written in terms of shrinking class size, rising teacher qualifications, growing specialization within the educational professions, and increasing investments in public schools. The school professionals have pressed these changes within considerable success, and always with the belief that they would benefit students.

It is no surprise to discover that as these changes occurred, educational researchers sought to discern their impact. The result was a veritable avalanche of studies concerning the effects of such things as class size, teacher experience and qualification, school size, and educational expenditures, on students' achievement. Yet, as J. M. Stephens pointed out in a recent review of these studies,[2] the results were almost uniformly negative. Most of the changes that were supposed to make good schools from poor ones seemed not to make good students from bad ones. Class size, teacher experience, school expenditure, teacher qualification, and school size almost never affected students' achievement.

The accumulation of these studies seriously undermines the notion that the school professions' interests are identical with children's. But this seems to have had not the slightest effect on school policy or practice. Indeed, despite the confirmation of these results on a grand scale by two massive national surveys within the last decade—Project TALENT and the Coleman report—the education professions continue to assert that the only real barrier to improved education is the absence of adequate resources. The schools have either dismissed the results as bad research or behaved as though they did not exist.

It might be objected, however, that this example is unfair. Most of the research in question was unrelated to particular efforts at school improvement, it was published in obscure journals by even more obscure researchers, and it presented no alternative paths for action. On this view, a better example would center on the efficacy of schools' endeavors to monitor their own efforts to upgrade performance. Perhaps the outstanding case of this sort is the evaluation of programs to improve education for disadvantaged children, funded by Title I of the 1965 ESEA.

The results from most Title I project evaluations are even more discouraging. For one thing, they are in no way related to decisions about program design, planning, or funding. In almost every case, evaluation appears to be an entirely separate activity, the results of which are unrelated to the decision-making process. But even if they were, the quality of the evaluations is such that the feedback would have little effect. The overwhelming majority of evaluations simply are not designed to yield information either on gross program effects or on differential project effectiveness. They are mechanical, crude, and sterile: they are, in short, designed to satisfy a requirement for receiving funds, not to discover what best serves the interests of disadvantaged children.[3]

[2] Stephens, J. M. The Process of Schooling: A Psychological Examination, New York, 1967, especially Chapter 7.

[3] There are several reviews of evaluation practice in Title I programs. The most comprehensive is Wholey, J., *et al.*, *Federal Evaluation Policy*. I reviewed the issue in depth for one state, in "Public Education," in *The State and the Poor*, Beer and Barringer (eds.) Cambridge, 1970, and generally in "Politics and Research: The Evaluation of Social Action Programs in Education," *Review of Educational Research*, April, 1970.

What is more, the results are not used in schools' relations with their clients and constituents. I have been able to find few instances in which evaluation results were made available to the populations at whom the programs were aimed. Indeed, there is by now a record of considerable resistance on the schools' part to releasing the results of evaluation, even to those established citizen advisory groups established by law or regulation under Title I. This, of course, is only one manifestation of a much broader pattern of behavior among local educational agencies: they are reluctant to make public much information about institutional performance.

This is not to say that the schools do not disseminate information. They do. Their initiatives in this connection, however, are ordinarily confined to those occasions on which public support for school programs must be organized to raise new monies. And even on such occasions, the information stays well within the bounds of those criteria enshrined in professional standards. The schools' "needs" and "successes" are related to the age of facilities, the qualifications of teachers, and so on. Other information, which might illuminate performance differences among schools and school systems—such as test scores, track assignments, or post-school work or education—remains a mystery. I do not mean to suggest that such information is deliberately suppressed. Only a little is; most of it is never collected or analyzed.

The impression which emerges from all this is that public education agencies maintain a virtual monopoly over information on schooling. In addition, the available information is cast in terms which suit the interests of the educational professions. The schools themselves exhibit a deep antipathy to creating or utilizing information on institutional performance. What is more, they provide little information to clients or constituents, and none of it would challenge either the existing management of the enterprise, or its definition of educational quality.

The evidence on these points could easily be multiplied, but there is little purpose in extending such a dismal tale. The important question is why the institutional demand for information is so low and consumers' capacity to manage it so underdeveloped.

The answer is that there are few if any incentives to utilize information on institutional performance within public education. One reason for this has to do with the character of the incentives and constraints within which education professionals work. The public schools are essentially a public employment system—a civil service. The criteria of personal advancement in such systems is defined largely in terms of standards created by the professionals involved, and very typically center on length of service and level of professional training. Thus, the focal points for competition among teachers within systems are almost exclusively bureaucratic—the amount of work toward advanced degrees, the extent of service in such non-obligatory tasks as curriculum committees, activity in professional organizations and activities, and sometimes specialization in a subject-matter area. The rewards include salary, promotion, and autonomy. None of this has anything to do with individual or institutional performance.

There is competition among schools and districts, but, as might be expected in a civil service employment system, this is not unlike that which occurs within school systems. The object for schools is to gain

a larger complement of personnel whose attributes are desirable in terms of professional values—chiefly degrees and quality of school attended. The schools and systems which have more people with more such attributes are generally regarded as superior.

Finally, status is attained not by making better sudents but by having them. The "better" schools and school systems are not those which bring their students further from where they began, but those whose students go farther because they started with an advantage. This does not reflect any invidiousness peculiar to the educational professions—it simply mirrors the dominant social status system. What is more, there are few alternative upward routes within the school system. People who begin with low status and credentials cannot rise swiftly in public education—by becoming influential or wealthy—as they might in higher education, business, or crime. As a result, the main paths to advancement are either through serving time or gaining political power within one of the bureaucracies or professional organizations.

Thus, all the constraints on employment for school professionals are unrelated to individual or institutional performance. But this is hardly the only reason why information on institutional performance is neither sought nor utilized. Another important consideration is the existence of an ideology that identifies school performance problems with the clients, not the institutions. The schools operate on the explicit assumption that the sources of childrens' failure in school lie with the students, their families, and their social inheritance. Although this is not the place to explore the sources of this ideology, it is worth noting that it flowered as the cities' population was swelled by domestic and foreign immigrants.

The ideology is manifest in the extensive information system the schools do maintain. Although it provides no data on the performance of schools, there is an abundance of evidence on the performance of students. Pupils are tested for intelligence and achievement, graded on academic effort and standing, and rated on a bewildering variety of personal and character attributes. They and their parents are regularly apprised of these tests, grades, and ratings, and precautions are taken to make sure that the information is noted at home. All of this, of course, proceeds on the assumption that the source of childrens' academic difficulties lies outside the schools. The school information system contributes to this notion (indeed, it co-opts parents and children to it), as do the various "sciences" of education. Schools are not given report cards—they are not tested, they receive no grades, and their social, economic, or academic standing is never threatened for nonperformance.

This is not to say that there are no potential countervailing forces: at the local level schools are politically accountable to the public; there are independent accrediting organizations; and state and federal agencies have some responsibility for ensuring quality in local schools. It is to say, however, that these potential countervailing forces have little effect. Their impotence is the third major reason why public education neither demands nor creates information on institutional performance.

State education departments and the independent accreditation groups, for example, have established minimum quality standards for schools. They are backed up by sanctions. and when school systems

fail to comply more or less drastic penalties are invoked. But what are the standards? Do they involve institutional performance, or management? Upon inspection it turns out that minimal standards are defined almost exclusively in terms of the school professionals' criteria of quality—teacher experience and education, adequate facilities, class size, etc. Moreover, the state agencies, and the accreditation groups are staffed almost entirely by persons drawn from the school professions, who therefore share the commitment to professional standards. As a result, these institutions tend only to reinforce the assumption that the only relevant measure of institutional performance is implementation of professional standards.

Lay control at the local level also is constrained. The professionals who control the educational enterprise have developed a system of distinctions between policy and practice which keep laymen's hands pretty well out of the machinery. In addition, the sort of laymen who find their way to boards of education through some citywide selection process (elective or appointive), usually have enough other things on their minds to keep them from making serious trouble for the staff. And even if they didn't, the professionals serve as the sole staff for school boards, which assures that no countervailing power could emerge within the bureaucracy.

A final consideration is that the mechanisms for information use among the schools' clients and constituents are fairly primitive. The PTA is, for all intents and purposes, a captive of the professional associations at the state and national levels, and at the local level it operates in "partnership" with the school authorities. Further, the insulation of education from "politics" minimizes the constraints on schools exercised through the electoral process. School board candidates usually do not run with party identifications, and while they may build personal organizations after election, typically these are not large or strong enough to gather, process, and disseminate information which might undermine the schools' monopoly.

Within the structure of public education, then, there is neither countervailing power that might compel the schools to utilize information differently, or sources of counter-information which might challenge the schools' monopoly. Some potential checks exist, but the organizations have so completely assimilated professional standards that they have a precisely contrary purpose. Instead of promoting diverse standards of quality, and competing information, they serve only to check deviations from the existing orthodoxy.

Is there any reason to believe that merely increasing the supply of information would change this situation?

THE CONSEQUENCES OF GREATER SUPPLY

There are three reasons for an affirmative answer. One is that social accounting in education would produce information about technical improvements which would generate their own pressure for adoption. A second is that social accounting would reveal inequities in outcomes and the allocation of resources, and thereby multiply pressure for change. A third is that social accounting would become a countervailing information source, challenging the schools' monopoly in this area.

Of these, only the first point is clearly incorrect. Social accounting would be an unlikely source of information on technological innovations, since its purpose is to measure status and change on certain broad social indicators, not to identify particular innovations and evaluate their consequences.

It is more difficult to quarrel with the other two ideas. There are more than a few cases in which the presence of information has made a difference in government. Where would the *Brown* decision have been without the evidence on the effects of segregation? Or the reapportionment cases without the U.S. Census of Population? Or economic planning without data on productivity, prices, employment, and consumer behavior?

Similar examples can be produced for information as a source of countervailing power. Federal Census information on population and housing has been turned to advantage by advocates of social legislation, outside and within the government. Information on civil rights compliance published by the U.S. Commission on Civil Rights has typically been at variance with other official information on the subject, and it has been useful to groups pressing for more vigorous enforcement of anti-discrimination laws. Labor and management see to it that the federal government collects and publishes information useful to their respective views of the economy.

But the common point in both sets of examples is that information alone would have little effect. It seems to become important when appropriated by existing political interests. Apart from muckraking (which produces horror stories of a sort unlikely to emerge from a system of social indicators), an estimate of the likely effects of information is really a judgment about the strength of contending forces in a given political arena.

There are few likely sources of such strength within state and local school systems. Are there other potential users of social accounting?

At the local level, the main hope seems to be those community groups and school reform agencies which have been struggling with the schools for the past eight or ten years. By all past standards these conflicts have generated absolutely unprecedented amounts of information on school problems, and considerable pressure for change. For the most part, however, this has been as water on a duck's back. The public schools have quite effectively ignored the information and resisted the pressure. The chief results have been a really remarkable series of changes in the ideological scenery (as reformers shifted their ideas about what should be done with the defeat of each earlier notion), and a substantial increase in the sense that public institutions are unresponsive. It is difficult to see how adding more information would change anything.

The other potential user of social accounting lies with the federal government. There is a body of thought which holds that America is ruled increasingly by trained managerial elites, not by the untutored contending interests commonly discussed in textbooks on politics. As the management of public institutions falls increasingly to such technologists, the domain for "rational" decision making is thought to grow. Rational decisions, of course, require sound information.

For better or worse, this vision hardly squares with the facts, at least in education. There was a brief spurt of interest in scientific social planning in the mid-1960's, with the advent of PPB systems in the Depart-

ment of Health, Education, and Welfare. There has, however, been little growth since then. The staff is too small to carry out the requisite analytic work, and the information base for it is mostly lacking. The data required for social planning activities on the PPBS model—program evaluation and comparative program effectiveness studies—simply do not exist.[4] A system of social indicators could not provide them.

In my view, however, this is probably an incorrect way to view the likely consequences of a national system of social accounting in education. Although it would not lead to a radical change in the character of federal decision making, a well conceived system could serve the same function as any census. It could identify existing inequalities in school outcomes and the distribution of resources, and provide evidence on their trends. Such information might even have some impact on decisions about federally-sponsored school programs, and it might weaken somewhat the information monopoly currently enjoyed by the public schools.

Nonetheless, a system of social accounting would not have a major effect on the quality of state and local educational decisions or the performance of educational institutions. The federal share of public elementary and secondary school revenues is less than eight cents on the dollar, and federal influence on state and local decisions is comparably small. Even if a national system of social accounting were adopted, federal leverage is not sufficient to affect either the demand for or the capacity to utilize information among states and localities. Thus, while it is understandably attractive to focus on the relatively more flexible federal bureaucracy, the real problems lie elsewhere.

STIMULI TO GREATER DEMAND

I have identified two critical barriers to the use of social accounting at the state and local level. One is the absence of any incentives internal to school systems which would create a demand for the products of social accounting. The other is the absence of any countervailing forces, which might either use new information to affect school policy, or use their influence to affect the schools' information use.

Are there any ways in which these obstacles might be overcome?

There are devices which, in theory at least, would correct one problem or the other. Perhaps the most obvious approach would be to change the constraints on "production" in education, so that schools were rewarded in proportion to the value they added to students' performance. Several variants of this notion have recently become popular, including merit pay for teachers and performance contracting for schools. Such schemes create new supply standards based on predetermined performance criteria. In theory, at least, these bureaucratically-established criteria become the "demand" which producers would seek to satisfy.

Would such arrangements increase the demand for information by educational producers? Since the notion of performance rewards implies one (or perhaps a very few) measurable criteria of performance, all suppliers would be interested in the same sort of information on the educational "production" process. Some of this might arise from a system of social indicators. Much of the information demand

[4] See Wholey, *op cit.*

in a system of performance rewards, however, would probably involve technical innovation. Here social accounting systems would not be much help.

The really important question, however, is whether a system of performance rewards would strengthen the position of consumers and clients (i.e. parents) with respect to information about schooling. One hypothesis is that such a regulated market system would work, and producers would disseminate information freely in their efforts to compete for clients. But prior experience suggests that it is probably more reasonable to suppose that producers would collaborate to minimize competition by maintaining performance parity and fixed shares of the market. They might also provide consumers with deficient or misleading information. After all, if a clear and direct link between performance and reward were established, the most sensible course for producers would be to set some acceptable level of performance that most could meet, and close off further competition. Indeed, even if the producers did not take this tack, many students and parents might. Greater productive "efficiency," after all, would almost surely come out of the students' skins.

The likelihood, then, is that consumers and clients would be faced with many of the same problems they confront in "free" markets elsewhere. Much of the competition there lies not among firms to provide goods and services more efficiently, but between consumers and firms to find out what, if any, real differences exist among products, there are, and what fair value is. This would not particularly help consumers of schooling. It certainly would not provide a situation in which information systems would give them appreciably more leverage in bargaining with educational producers.

In theory, of course, this combination of producers against free markets would not occur. Ideally, in a performance reward system social indicators would counterbalance the producers' tendency toward stasis. Information on the relative standing of schools' inputs and performance, for example—which could be easily incorporated within a social accounting scheme—would allow effective action against underperforming schools.

The difficulty, however, lies precisely here. Who would take action? The heart of the performance reward idea is that "market forces"—i.e., the pre-established demand criterion—would compel producers to redress their own poor performance. Consumers would therefore really be quite passive. The important transactions would take place between producers and whatever agency collected information on their performance and disbursed the performance rewards. Therefore, even if we hold apart problems of fraud, price-fixing, and deceptive advertising, a performance reward system would not directly involve the clients and consumers of education. Indeed, the greater technical complexity might further separate them from the decisions.

At bottom, then, performance reward systems are really a form of government regulation, in which fiscal constraints replace bureaucratic or political punishment as the enforcement mechanism. Are there other schemes which might avoid some of the pitfalls of performance rewards?

One possibility is establishing countervailing centers of bureaucratic power, which might improve the schools' use of information and serve

as consumer protection mechanisms. One way to do this would be to create sizeable independent staffs for local boards of education. They would have a mandate to monitor the effectiveness and efficiency of the existing enterprise, and an obligation to publish regular reports rating schools and services. Another would be to establish regional or state-wide units, with the same mission. Another would be to offer public subsidies for independent citizens research agencies, akin to the private government research bureaus which have been common in the larger cities since the salad days of the Progressive movement.

Such schemes would have several plain advantages over performance rewards. First, performance rewards involve a unitary output standard (or at best two or three standards), but astonishingly little is known about the "important" outcomes of schooling. Achievement test scores seem to have no direct impact on performance later in life. There may be an indirect effect, but we are not sure what it is. What is worse, even if we knew what was "important", people (and population subgroups) would differ in the degree to which they regarded the important outcomes as valuable. Any system of performance rewards, then, would be arbitrary at best, and perhaps mistaken. Competing bureaucracies, however, could deal with a variety of outcomes, at different times, and with different emphases. Their purpose would not be to insure performance in some mechanically rigorous sense, but to create incentives and constraints by political and administrative pressure.

Such agencies would almost surely utilize the products of a system of social accounting. In fact, they might become one of the chief consumers and interpreters of the new information. If the information were national or regional in scope—as it almost certainly would be—such agencies might gather similar data at the state or local level. More important, the information might actually be of assistance to consumers. One could argue, at least, that such agencies would avoid the consumer exclusion inherent in the performance reward schemes because they would rapidly discover that mere publicity was not enough. Headlines on Monday rarely produce change on Tuesday. The agencies might therefore try to generate support among parents by assisting established consumer groups or encouraging the creation of new ones. This would surely increase the availability of information to consumers, and it might even have some impact on schools. In theory, then consumer groups would have a symbiotic political relationship with these new regulatory agencies: the former would have power, but not much capacity to gather or process information, and the latter would have the information capacity, but not the power to turn its product to political advantage.

The trouble with the theory is not that it is incorrect—but that consumers are by no means the only available constituency. Even the rosiest review of independent regulatory agencies reveals that they tend to be staffed by people from the professions or enterprises they are supposed to oversee, and to act as though these professions and enterprises were their most important constituency. This has certainly been the case with the state school agencies and school accreditation groups, and it even seems to be true of the more independent federal agencies. Apparently the only way this tendency can be minimized is to mobilize consumer groups and force the regulatory agencies to work more effectively.

Thus we seem to have come full circle. Establishing countervailing bureaucratic power might impel the schools to make better use of information, and to improve their performance, and it might help consumers use information about education. But these things seem unlikely to happen unless the new agencies organized the consumers. All past experience with such agencies, however, indicates that they would be more likely to pay attention to the schools than to the schools' clients. This tendency would only be reversed if consumers forced the agencies to behave otherwise, by applying political pressure.

The missing ingredient, then, is consumer power. Performance rewards and countervailing bureaucracies would exclude clients by confining the regulation process to competing centers of bureaucratic power. Or, to put it another way, both schemes would substitute government standards for consumer preferences. While parents and children would remain the clients of educational institutions, they could not have much influence on producers by changing preferences or switching brands. Such power would be vested in government hands.

In effect, although both schemes seek to make schools more responsive, and to create better information use, both might founder on their exclusion of consumer interests. This should be no surprise. These schemes propose to affect schools' behavior by constraining the terms under which schooling is supplied, but students and parents are not suppliers of education. Thus, government regulation of supply leaves them as passive bystanders to the process of their protection. It offers them neither incentives nor new avenues for informing themselves, or for policing the action of various government agencies.

No amount of government regulation could remedy this difficulty. The only way to increase either the consumers' ability to utilize information, or their power to compel public agencies to do so, is to increase consumer power. This would involve altering the constraints on demand, rather than seeking to further regulate supply.

To be precise, it would require that parents could choose among schools.

CONSUMER CHOICE IN EDUCATION

There are a variety of mechanisms that would allow consumer choice. One would be permitting small groups to receive State subsidies if they wished to establish public schools; another would be elimination of zoning requirements for public schools, and allowing parents to choose among them freely; a third would be to permit community or other groups to subcontract with the existing school systems to operate all or part of a school. Finally, parents could be given tuition vouchers, which would allow them either to choose among existing schools or to join with other parents to form new enterprises. Vouchers are probably the most effective device.

Any of these would be rather a large step. While government regulation of the supply of public goods is no novelty, consumer choice among public service producers is almost unheard of. In my view, however, it would be most likely to sharply change the schools' pattern of information use. For one thing, tuition vouchers would provide a simple and direct incentive for schools to do the things they promise because the vouchers would give consumers the power to go elsewhere. This is the same sort of incentive as performance rewards (i.e. money), but the

consumers, not the State, would control the incentives. As a result, they would be much better situated, and more motivated, to demand information on the schools' performance.

This is not to say, of course, that there would be no tension between consumers and producers, or that producers would not try to control information, or present it in the most advantageous terms. It means only that consumers would have a weapon that would give them some bargaining power with schools, and some reason to combine to secure good information. That is, it would tend to encourage the formation of consumer protection groups, since parents exercising choice among products would desire some independent assessment of the alternatives. A review of consumer behavior in other markets, however, suggests that this would be far from a universal phenomenon.

Finally, it is worth noticing that vouchers would work even where performance was measured in different ways by different schools. Unlike the performance reward schemes parent choice would require only that schools do the things they promised. Although some of these things might elude a purely quantitative system of social indicators, many would not. The information system required would be more complex than in a performance reward scheme, but that would hardly discourage the advocates of social accounting. More important, the information that was collected would be of interest to both consumers and producers.

Tuition vouchers would not produce perfect information use, or anything approaching that. Individual consumers are always at a disadvantage when they confront large, organized enterprises, and this would be no exception. Indeed, there is good reason to believe that even with a system of client choice, it would be essential to also have an independent government agency to collect, process, and publish information on schools, what they promised, and how they are delivered. What is more, all the schemes I have discussed leave untouched the problems of differences among population subgroups in the capacity to use information. While parent choice would help most in this respect—because it would encourage consumer unions, rather than leaving individuals isolated—differences would surely persist.

Given these problems, however, empowering consumers seems to hold the greatest promise. It would be most likely to increase citizens' power to utilize information, and their ability to compel schools to do the same. It would, in a word, improve both the school's demand for information, and the consumers' ability to utilize it.

CONCLUSIONS

This paper has been a preliminary foray into a complicated area—the political barriers to social intelligence in education. My argument is that the main obstacle to social accounting is that schools are not organized to utilize such information, and that at present consumers have no way to change this. Of several possible remedies, the most promising seems to be consumer choice among schools. This would provide a substantial incentive for both schools and consumers to seek and utilize information.

Of course, this is very abstract. Loosening the constraints on consumer choice might also affect racial segregation, economic discrimina-

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tion, and church-state relations. Avoiding problems in these areas might require some constraints on consumer choice, and one does not know what effect this would have on information use. It also is possible that bureaucratic regulation schemes would work much more effectively than I have suggested, or that there are better ways to create countervailing power than those I mentioned.

In each case, it would be worth the effort to find out. And perhaps, the most important point we can emphasize is the need to experiment with new institutional models. Were different approaches to constraining supply and unconstraining demand tested, we might learn a good deal about the behavior of schools and their clients under changed conditions.

The reasons for such experiments are far from trivial. We live in a society that has always officials subscribed to the notion that reason is regularly and successfully applied to public affairs. Indeed, the last decade has seen a rising interest in the application of systematic intelligence to society. Studies of the future, of social indicators, of PPBS, of evaluation are only a few manifestations of this.

I have no doubt that the next decade or two will see an enormous increase in social information. But our capacity to manage and apply this information lags dangerously. This is a problem of social and political—not machine—technology. Our invention of ways to produce and process information accelerates, but our ability to digest and utilize it does not. Many resources are committed to the technology of gathering and processing information, but few of its social utilization.

Thus, while I am an avid advocate of more and better social intelligence, experimentation with new organizational forms seems much more important. I say this because the inventors and interpreters of information systems have a responsibility beyond simply creating them. Information, after all, is social, and the rationale for its existence is its social utility. If there is good reason to believe that new information will not be very useful because it will not be used, it would be perverse to do no more than continue to generate it. The more sensible course would be to devise ways to increase the chances for its utilization.

This course would not be easy. It would require efforts to understand and overcome the schools' resistance to the application of organized intelligence and their resistance to their clients' preferences. But not to do so may in the long run be worse. After all, what better way could be devised to undermine the case for social intelligence than to gather and pile it up in situations where there is little hope for its use?

A CRUCIAL ROLE FOR THE NATIONAL INSTITUTE OF EDUCATION

By WILLIS W. HARMAN AND THOMAS C. THOMAS

These remarks are addressed to the questions of what kinds of disciplined inquiry would be most relevant to the changing demands on education, and how the proposed National Institute of Education might best contribute toward this end. In particular, they point out that expectations implicit in the discussions surrounding NIE proposals suggest an inquiry more far reaching and of significantly different character than is implied in most current projections of educational research.[1,2]

EXPECTATIONS FOR NIE AND CONDITIONS FOR THEIR REALIZATION

A society demands that its educational system meet its goals and resolve its problems. As a consequence, times of social change require that educational priorities and functions change. This is almost a truism, as we can see by recalling a few of the past demands on the schools—to provide training in the new industrial and mechanical arts, to assist in the Americanization of immigrants, to contribute toward raising sagging American prestige in the post-Sputnik days. Thus, in addition to the standard demands resulting from the educational needs of a modern complex society, special demands on the educational system arise from perceived social problems of the "seventies," and from contemporary goals. Their diversity, if not their quantity, is shown by the following needs.

> To increase the ability of the disadvantaged to contribute to the society (economically, but also in other ways) by raising educational achievement.
>
> To assist in the reduction of political and racial conflict.
>
> To develop in children the qualities for successfully coping with an uncertain future (self-directed learning, flexibility, ability to think in terms of alternative courses of action, strong self-image and high self-reliance, self understanding, responsibility, well developed moral sense).
>
> To meet more stringent criteria of effectiveness and social accountability at a cost the society will bear.

NIE's proposed task is to strengthen educational research effectiveness in ways that will contribute to the resolution of these problems and, thereby, to reduce present dissatisfactions with the educational system.

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[1] L. J. Cronbach and P. Suppes, "Research for Tomorrow's Schools" report of the Committee on Educational Research of the National Academy of Education, Macmillan, 1969.
[2] R. E. Levien, "National Institute of Education" report on the first phase of a planning study for the proposed institute, U.S. Office of Education, January, 1971.

An interesting parallel can be made with the case of agriculture. A century-old national policy to strengthen American agriculture through research and development has produced results that are judged outstanding by most criteria. Through nationally organized and funded laboratories, experimental facilities, and demonstration and training sites, agricultural productivity has been increased dramatically and the quality of many products has been improved. This example has often been cited to argue that a similar policy in education could produce equally outstanding results.

This may not be a realistic expectation. If success is to be measured in terms of increased productivity and product quality, agricultural research has unquestionably been conspicuously effective. However, if these same accomplishments are evaluated against such social goals as equality of access to high quality agricultural products, or improved economic position of small farmers and agricultural workers, or husbanding of the country's agricultural lands, the assessment is not nearly so positive. Therefore, it is important to realize that, in the case of education, it is precisely such broad social goals that *are* the proposed assessment standards. Furthermore, where the agricultural function is localized to farms and distribution systems, the learning function is diffused throughout the society with only a fraction taking place in the formal educational system. Thus, the narrowly focused educational research we have known in the past—even if vastly increased in quality and amount—may not greatly affect the overall educational process in the society, or assist the educational system to more nearly meet the demands being made on it.

Yet historical precedent gives us ample reason to believe that disciplined inquiry, imaginative program development, and the adoption of suitable management techniques, can enable us to resolve problems and to achieve goals once those problems and goals are adequately defined. If NIE is in fact to address its efforts to the broad aims outlined in the President's 1970 Message on Educational Reform, planning must reflect the unique characteristics of a disciplined inquiry that could deal effectively with the tasks. If NIE is focused on fractionated problems and partial goals—for whatever reasons of initial design, disciplinary limitations, or political expediency—the outcome will inevitably be another episode of expectations raised and not realized.

The nature of the questions that must be addressed implies two significant differences between the anticipated work of NIE and most past scientific and educational research:

(1) Educational issues must be examined in the context of broad societal issues and problems (for which we have to date only inadequate formulations and models).

(2) Exploration of those issues is essentially a moral inquiry, for education is always directed to some end.

We propose to examine the above differences, and their consequences.

THE SOCIETAL CONTEXT OF EDUCATIONAL ISSUES

The preponderant tendency in educational inquiry is to agree that educational issues can be meaningfully examined only in the broad social context—and then to take actions that indicate we do not really

believe it. There are various reasons for this, including bureaucratic limitations of responsibility, the intimidating complexity of the larger problems, the traditional partitioning of knowledge into disciplines, and narrow definitions of what constitutes rigorous, value free research.

Our intent is not to devalue the numerous merits of current educational research, but to highlight the fact that the lack of broadly focused research cripples the formulation of effective educational policy. It is important to note that these two approaches are complementary:

(a) broadly based research on the whole educational system and on the interaction of education with other parts of the society, and

(b) more narrowly focused component research in such areas as curriculum, pedagogy, and learning theory.

The former is needed to guide the latter, and the latter gives substance to the former. Thus the question is not whether we need broad systemic inquiry *instead* of subsystem component research; it is, rather, how to accomplish the extremely difficult, but critically needed, systemic studies and experiments.

Without belaboring the point, let us summarize five commanding reasons why educational issues must be seriously examined in the context of broad societal issues:

(1) Most serious educational problems are components of more pervasive social problems, and hence can be adequately understood only in the broad context.

(2) The entire society educates, so that formal educational experience is but a component of the whole.

(3) The range of actions of the formal educational systems is constricted by influences from the larger society.

(4) Limited formulations of a problem may limit the range of means sought for its resolution.

(5) Optimizing the achievement of subsystem goals without reference to the larger societal (systemic) goals may not be most advantageous or sufficient.

It may be illuminating to examine a specific example to see how these points apply. Consider a question of current concern: the cumulative reading deficit of poor children, particularly minority-group children.

Although there have been many studies examining many aspects of the reading issue, the results to date offer little basis for expecting that such reasearch will lead to new programs effective outside the experimental classroom. Some of the possible reasons are suggested below.

(1) *Educational problems as components of pervasive social problems*

The difficulties minority and poor children experience in acquiring reading skills are related in part to the broad phenomenon of maintenance of an "underclass" in which blacks and browns are significantly overrepresented. No adequate models exist of the mechanisms accounting for the persistence of this underclass; the ways in which the sense of hopelessness is transmitted from one generation to the next; the effects of community, teacher, parent, and child expectations on student achievement; the basic cultural assumptions about what kinds of educating and socializing experiences should be provided and when; the effects of a multitude of physicial, psychological, and social

circumstances on aptitude, energy, and motivation. Isolated findings exist relating early environmental stimuli to cognitive development, infant nutrition to intellectual aptitude, and so on, yet there have been no overall frameworks into which these findings have been incorporated to yield productive broad-based strategies.

(*2*) *Entire society educates*

The child's personality, motivations, attitudes, skills, and knowledge are influenced by all the social forces acting on him—attitudes and beliefs of the immediate and larger community, relationships with peers, television and other media, advertising, and contacts with the world of business. His ability to cope with his social environment of which reading ability is but a component, is a function of all of these. Hence an effective strategy for developing this ability may have to include much more than reading-development techniques per se.

(*3*) *Educational actions constrained by society*

To be effective, actions and programs within the school require financial, institutional, and moral support by the larger society. Present reward structures and other system characteristics make it unlikely that programs that have proven successful in individual cases, but change normal operating patterns (e.g., older children teaching younger ones) will be widely used, while other repeated failures, which conform to normal operating patterns, (e.g., reducing class size) continue to be repeated. This tendency is heightened by a dilemma common to all social experiments in a political environment: "If a problem area . . . is unpopular and/or unimportant, experimentation should not and/or will not be done; but if it is popular and important, action will not wait for experimentation." [3]

(*4*) *Limited formulation of the problem*

Definition of a problem as "low reading aptitude" is likely to lead to consideration of a much more limited range of alternative strategies than definition of the problem as "a society that perpetuates a low self-fulfillment, low social-contribution underclass." The reading problem may turn out to be more successfully dealt with by a tangential, systemic approach than by a head-on reading techniques approach alone. A more comprehensive approach might include such features as relaxation of specific capability goals at definite grade levels; reducing the amount of sorting-and-labeling in connection with learning; altering the environment of high stakes competitiveness (which might require reexamination of the economic system); carrying much further the idea of free nutrition for needy children and pregnant mothers; making educational toys available in homes with small children, laying down guidelines for advertising on children's TV programs; increasing employment opportunities for older minority youth who *can* read; using more of such young people in helping to teach younger children; and other ways of affecting those factors which we already know from past research to have a bearing on the learning aptitudes of young children. Further, the systemic analysis in a broad contest is an indispensable prerequisite to effective targeting and planning of more narrowly focused research.

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[3] P. M. Timpane, "Educational Experimentation in National Social Policy," *Harvard Educational Review*, vol. 40, No. 4, November 1970, p. 565.

(5) *Suboptimization*

Examining potential systemic changes (rather than only having more narrowly directed reading programs) would make it likely that overlap and continuity requirements would be adequately dealt with (more likely than in the case of Head Start, for example), and that second-order consequences (with regard to child-adult relationships, side effects in family and community, impacts on school administration, and so on) would be anticipated and programmed for.

The above discussion seeks to illuminate the synergistic nature of our social organization and how one seemingly small educational issue—reading mastery—affects and is affected by social issues and problems that appear to be far removed and unrelated to it. We have yet to develop adequate methodology and tools with which to address social issues within their more holistic contexts. Though the task is difficult and the way largely uncharted, significant improvement of educational problems awaits such research development.

Educational Research as a Moral Inquiry

A prime function of publicly supported education in the United States is to implement the chosen goals of the nation. This implies two things above all. The first is that the central purpose of education is to enable persons to function effectively within the social context of their time. The second is that the ultimate goal of the educational system, as it is of the nation, is the well-being and self-fulfillment of the individual. "A paramount goal . . . is to guard the rights of the individual to ensure his development, and to enlarge his opportunity. . . . Our enduring aim is to build a nation and help build a world in which every human being shall be free to dedicate and develop his capacities to the fullest." [4] Further, education needs to be future-oriented—for today's infant will be an adult in tomorrow's very different world.

Whereas the task of education is to develop a set of coherent and consistent educational objectives and a plan of action toward their achievement; the overall task of educational research is to provide the knowledge and understanding that will contribute to their realization. The objectives need to be responsive to the historical moment with its unique social problems and challenges. It needs to reflect the experience of the community and to be consistent with the basic tenets of the nation and of Western political tradition.

Thus educational research is essentially a moral inquiry. Its task is to develop the most advanced methodology and to provide the scientific knowledge that will implement the noblest values of mankind. The tasks of research—from selection of topics, to choice of methods, to interpretation of results—are shaped by the implicit premises and values of the inquirer. In order for educational research to be consistent with the nation's tradition, the goals must be selected in an open political process. Thus analysis of educational research objectives and strategies needs not only to be a moral inquiry, but an *open* moral inquiry. That is to say, not only is examination of the value issues and the implicit premises that lie behind them central to the task, but open examination of them is essential in order to arrive at agreements on common action (even though common perspectives may not be

[4] *Report of the President's Commission on National Goals: Goals for Americans,* Prentice Hall, 1960; p. 1.

shared.) The authority of the researcher-as-expert will not go unchallenged in this field.

To pursue the inquiries shaped by these principles requires:

(1) That the inquiry itself involve many people, of different backgrounds and in different positions, to share perspectives and test judgments

(2) That the inquiry must be guided by a set of values and goals that are basic to the common endeavor which has for two centuries been called the United States of America

(3) That the inquiry be intimately linked to action, not only in projecting consequences but in testing them as well.

(4) That decisions regarding such tested consequences be determined in the open forum of public debate.

These inquiries need to explore areas where massive injustices exist, as with minority groups and the poor; where the unintended consequences frequently outweigh the intended ones, as in the applications of new technology; where the pursuit of limited self-interests destroy community potentials. Also they will need to appear responsible to the establishment and legitimate to the dissidents.

Examples of Research Questions

What kinds of research questions, being a moral inquiry into the societal context of educational issues, would be relevant to the sorts of needs described in the President's Message on Educational Reform? Some illustrative examples are:

- What changes would help to reduce inertias and rigidities in the educational system and foster a greater degree of experimentation and an ability to meet problems with adaptive change?
- What educational objectives could be inferred from present educational practices and results (as opposed to what educators claim as their objectives), and how do they look in terms of the kind of world the child will be living in as an adult?
- What, in terms of these objectives, are the most satisfactory models of human growth and learning?
- To what extent may present educational objectives, philosophies, and practices be contributing to the occurrence or severity of such social problems as ecological irresponsibility, racial prejudice, unemployability, national disunity, and the like?
- What alternative ways can education be structured in order for business and industry, government, schools, the media, advertising, entertainments, the courts and prisons, to be considered together as one vast educating system?
- As only one of numerous educating influences in society, what educational functions should the formal educational system emphasize? How can those functions best be accomplished?
- How—in view of the changing work environment—can a planned evolution of the structure and function of vocational, or continuing, or adult, or higher education best take place?
- What are the comparative advantages and disadvantages of retaining the present sorting-labeling and gate-keeping functions that education performs for the society, compared with dropping some of them or shifting them to other institutions of society?

- What are the present patterns of rewards and sanctions in the educational system, especially with regard to experiment and innovation, and what are feasible modifications?
- What sorts of changes will be necessary in the schools to restore a widespread feeling of legitimacy?
- What are the alternative choices with regard to increasing the accountability of the educational system to the society, and what are the basic issues involved in making the choice?

NIE's Role in Educational Reform

The vast task of restructuring and reform of the educational system will require concerted action and commitment throughout the society. The contribution of a NIE that functions in the traditional mode of an isolated collection of *educational researchers*, *bounding* their problems to the classroom or even to the educational system, would be limited. The impact of a NIE that addresses the larger propositions and the broader issues of human endeavor will be significant.

It is clear that increasing the effectiveness of the teaching process is not enough. The major problems the society faces today are in some measure a consequence of past educational "successes"—in educating "good workers" for the industrial system and "good consumers" for the economic system whose per capita impact on the environment has reached an all-time high and also in labeling, early and indelibly, those who would not fit into the mainstream.

The results of NIE's research program cannot be limited to the apparently amoral one of increasing the effectiveness of the educational system—it must ineluctably increase effectiveness toward some social moral goals, explicit or implicit. In a time when all social goals are being re-examined (e.g., economic growth, nationalist imperialism, exploitation of nature, the "technological imperative") and basic premises and value postulates questioned (e.g., the "scientific" or "economic" reductionist view of man), the issue is particularly critical.

We have emphasized the need for NIE to do research that will result in open and continuing examination of educational goals for the entire society and the interaction of societal and educational problems. This is not because we feel that a large fraction of the research money needs to be devoted to these issues. Rather, it is because the leadership function in NIE and in education in general must be supported by the type of research that has been described. Broad systemic research and more narrowly focused component research complement each other because the former is needed to guide the design and application of the latter, while the latter gives substance to the former.

Thus our remarks have profound implications for the mission of NIE, the structure of the organization, the choice of the director and top staff, the planning and evaluation functions, and part of the research program. The implications are much less for the bulk of the research work that will be done. However, even here, we expect NIE to be sensitive to developing ways that may make the component research more interlocking and additive than has been true in the past. Our recommendations for NIE's mission are broad, but no less broad are the demands of society upon education.

THE DESEGREGATION/INTEGRATION DILEMMA IN HIGHER EDUCATION: IMPLICATIONS FOR RESEARCH FROM MINORITY STUDENT EXPERIENCES

By JUNIUS A. DAVIS

Political and legal forces are pressing for the demise of the racially dual system of higher education as it has existed over the country. The nation's traditionally white colleges and universities, essentially liberal in nature (and probably fearful of loss of federal funds), appear to be moving with vigor to add blacks and other minorities to their student bodies. Among traditionally black institutions, with the exception of a few (generally new) black separatist colleges, counts are made each fall of the number of white students, and the results are proudly spread in the local press.

The efforts of the separate institutions to attract students of atypical racial origin vary, of course; yet, conversations with admissions officers frequently suggest unusual efforts. At one noted traditionally white Southern public liberal arts university, "integrated" for fifteen years, black recruiters have now been added to the admissions office staff, over three-fourths of the travel budget assigned to that office for recruiting was reportedly used for seeking black applicants last year, and two separate visits were made to every predominantly black high school in the state. A prestigious private university assigned, on a per-student basis, approximately seven times as much of its financial aid resources to black students as it did to white students. A small private church-related college used its black students to interview prospective black applicants, and conducted almost 900 interviews in one recruiting season—a number representing more than half their total enrollment.

Yet, such efforts as these should be evaluated by the results they produce, rather than by the magnitude and cost of the activity. In the case just cited of the public university, the vigorous recruiting efforts, directed at a high school senior population of some 20,000 Blacks, resulted in about 250 completed applications but only 131 enrollees, representing less than three percent of the total entering freshmen at the institution. The admissions officer at the private university complains that inadequate financial aid resources are a major factor in keeping his proportion of black students down to less than four percent of the student body. And the budget officer at the small private institution calculated that some 72 hard-sell interviews were needed, on the average, to produce one black student signed, sealed, and delivered.

Desegration guidelines and compliance requests directed by Federal sources to higher education institutions have made some suggestions toward improving the situation, involving such activities as selective recruiting, and attention to black athletes and black coaching

staffs. Confronted with the enormity of the problem, one wonders if these kinds of efforts are enough.

That progress *has* been slow is attested by data compiled by the Office of Civil Rights on race of undergraduate enrollment. For example, in the ten traditonally white public universities in one mid-South state noted for its relatively moderate climate on integration, only 1.6 percent of the undergraduate enrollment in 1968 (the date of conduct of most recent published survey) was non-white; private white universities and colleges in the same state that year show even lower proportions of non-whites. Whites in the traditionally black institutions in that state in 1968 represented 0.6 percent and 0.1 percent of the undergraduate enrollment in public and private institutions respectively. Local surveys in the current year show some improvement, but nothing dramatic by any single institution or group of institutions.

It therefore seems that neither the traditional freedom of choice of college, as opposed to the principle of assignment in public lower education, nor vigorous efforts by the institutions, nor federal pressures have removed the color line in institutions of higher education to any degree. It is the essential thesis of this paper that the real and subtle barriers to equal access to higher education are strong and pervasive, and that ambitious programs of research—at the national, state, and institutional levels—are needed toward determining what new forces may effectively produce a reasonable integration of higher education, and beyond that, may provide reasonable opportunities for honest and societally useful personal and intellectual growth and development.

Is Selectivity in Admissions a Deterrent to Desegregation?

One factor that must be recognized at the outset is that American higher education, though characterized as sufficiently diverse in content and academic/intellectual level as to provide a wide range of tolerance for individual differences, is a hierarchial system from institution to institution. Some institutions are blessed with more applicants than spaces, and maintain vigorous efforts to preserve this situation in the name of "quality"; the traditional criteria used by the gatekeepers or admissions officers are indices of past academic performance and scores on standardized tests of academic ability and achievement. Natural forces of institutional development, and the focus by the gatekeepers on the traditional yardsticks (past grades and scores on tests) have resulted in a situation where in most states the lowest ranking admitted freshman in one institution is higher on the admissions indices than the highest ranking entering freshman in some other institution. That this practice has some justification is shown by thousands of studies finding relationship between standings on admission indices as freshmen and academic survival in a particular college or univerity; that supply and demand factors color what levels of promise are required in any particular institution is shown by the variation among institutons in the average level (and range) of students accommodated. The problem for black students is too well known: on traditional tests they perform at significantly lower levels than do white students.

The major purpose of this paper is not to deal with the question of the use of potentially restrictive admissions criteria with minority groups, or with the validity of these criteria for cultural minorities. These questions have been frequently raised, and thoroughly studied; implications for continuing or expanded research are relatively barren. It can be said that, in the public colleges of the state wherein we have focused our recent series of investigations, there is evidence that admissions officers in traditionally white institutions are accepting much lower levels of performance on tests for black applicants than are required for white applicants (although higher records of performance in secondary school are typical for admitted black students). Second, there is no evidence that tests have less validity for predicting academic performance of black students than they do for white students; in fact, applying white student prediction formulas, and hence white-based standards, to black applicants tends to give higher ratings of promise than they achieve.[1]

Thus, it is confidently predicted that tests and the gatekeeper function are not particularly relevant targets for inquiry or restructure. Conventional tests are constructed by a search for items that discriminate between those who later do well in conventional programs employing the usual teaching strategies, vs. those who do not do well; it is difficult to locate cases where black students have been denied admission because of test scores (although those with high scores are ubstantially wooed by armies of recruiters), and it is easy to demonstrate that admissions officers have opened doors to lower scoring black applicants.

The Real Issues in Desegregation/Integration of Higher Education

The December 15, 1970 draft of the "Preliminary Plan" for the proposed National Institute of Education cites as a national priority the "increased equality of educational opportunity," [2] and sketches a program element concerned with problems of the disadvantaged in the context of the preschool and the public school periods.[3] The focus of the present paper is not only on the higher education period, but also on activities of direct concern for, and subject to implementation by, higher education institutions and agencies. The significant issues for higher education seem, to this writer, to be two-fold:

> (1) The problem of desegregating higher education must be viewed at least in part as a matter of changing those subtle but real social and personal forces that prompt cultural minorities in the self-selection situation to apply, if at all, principally to institutions that traditionally accept them; toward broadening perceptions and vistas of higher educational opportunity; and, toward improving access for minority students:
>
> (2) The problem of integrating higher education must be viewed as a matter of the effective accommodation of atypical students, through the creation and provision of learning environments that are conducive to honest growth and development for cultural minorities, whatever their deficiencies.

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[1] A summary of the main findings of research concerned with the applicability of standardized tests to black applicants for college is given as an appendix to this paper.
[2] Levien, R. E., *National Institute of Education: Preliminary Plan for the Proposed Institute*. Washington: The Rand Corporation, Dec. 15, 1970, p. 23.
[3] *Ibid.*, pp. 57–60.

"Atypical" Students: What We Believe They Are Telling Us

The "atypical" student, or the student in a racial minority for any particular campus, is a new phenomenon. As an aid to agencies and institutions anxious to increase the proportion of atypical students, we decided in 1969–70 to seek out such students on a number of campuses, and discuss at length with them separately and together why they had chosen their particular colleges, what expectations and anxieties they may have had prior to enrollment, what they had found and experienced. The answers to these questions from even those few on the leading edge of the higher education desegregation movement might, we felt, be helpful in suggesting more effective recruiting and educational treatment methods.

Our information on the "atypical" student in the traditionally black college—in this case, the white student—is scanty. Our concern was with entering freshmen, in the usual age range; intensive searches for such students were made in all public and private black colleges within the mid-South state that was the target for our inquiry. But, as we closed in on campus after campus, with traditionally black colleges in the state enrolling almost 25,000 students, we found only five individuals—two athletes, a Puerto Rican, an anxious and hostile young man who ran away, and a student from a midwestern state who had not realized the college was black until he came for registration, and who was too proud to return home. The others were adults from the campus neighborhood, usually in part-time study; faculty spouses; graduate students (generally teachers or students who had experienced difficulty in getting admitted to more selective professional schools); or exchange students.

Our conversations shifted to the faculty and administration. This produced some inventory of suggestions: achieving inroads by evening courses in off-campus buildings associated with white traffic or in white neighborhoods; greater attention to sequences of courses emphasizing local salable vocational skills; greater efforts to keep militant black students under control, or to avoid by whatever means public display of strife that would alarm parents of prospective white students; the attraction of white townspeople to campus cultural events, toward showing the college as a community property rather a black property; and, upgrading of programs to make them more attractive to whites.

Thus, it would seem that within the state studied, progess in desegregation of the traditionally black institutions is not as great as the very modest gains that public records would indicate have been made, and that the attraction of white students is a particularly difficult task. It would seem that ambitious programs of research and development should focus on such problems as the change of college image; the search for new programs (perhaps in such areas as community service) that would be equally attractive to Whites; studies of information imparting and more effective recruitment strategies; or, perhaps, experiments in the creation of totally new institutions that could start in a color-free tradition.

Our attempts to locate and enter into substantive discussion with black students on traditionally white campuses were more successful. Heavy use of black professional staff was made; and, we acquired a

corps of black upperclassmen from the thirteen target institutions, commissioned them to work with us, and trained them in interviewing and reporting methods. These students returned to their campuses, to conduct and report formal interviews of more than 160 freshmen. We also invited groups of black students from a larger number of institutions to day-long discussions (electronically recorded) among themselves and with black professional staff. We believe the strategy in asking blacks to enter into discussion of interests and problems *with each other*, while organizationally maintaining a low profile, was successful in preventing the vehicle of the research project from being used as a platform for presenting preconceived views and demands for "party-line" solutions—that is, the information exchanged among themselves seemed personal and sincere, and an unmistakable integrity of feeling and conviction came through in most instances.

What, then, did these students tell us or exhibit to us?

With regard to reasons for choice of college, we detected in those black students entering the traditionally white senior colleges or universities a variety of creditable responses. Like black students entering black institutions, there was a restriction of geographic mobility: they chose colleges that were near their homes. A few noted that a nationally ranked black athlete called attention to the fact that the institution was for all the people. Many of the enrolled students stated that through a good offer of financial aid they could comfortably afford to study at that institution; some had obviously shopped around and had taken the best offer of aid they could find. As has been found with white students, the guidance counselors in the secondary schools seemed to have little recognized impact on the individual's choice of college, although teachers were frequently cited as influential, particularly those in English and mathematics.

At the same time, some reasons frequently given by white students were understandably missing—that is, parent or relative, an alumnus, or choice of the institution by a close friend. There was no strong evidence of parental involvement in the choice of college.

But more important than these considerations was a host of underlying themes that may be designated as the "white is good" syndrome, or the relatively blind association of quality with the white institution. Permeating many of the discussions were statements that selection of a white college was influenced by a desire to get the *best* education—sometimes the best general education, or, more frequently, the best education in a specific field—and there was the seemingly natural assumption on their part that this ruled out Negro colleges. Sometimes this was stated directly: sometimes in other ways (e.g. "It doesn't mean anything to flunk out of a black college; you know you've failed when you flunk out of a white college").

That this "white is good" syndrome—a label the blacks in our study would surely object to—permeates the culture and activities in the predominantly black high school or black community is the finding that when it becomes known that a black senior has been accepted by a white college he is given a kind of superstar status: his name is posted conspicuously; he is presented, coat and tie, at student assembly; he is perceived by peers as one who really made it.

Another frequent theme was that the individual black student has a high level of professional aspiration in which education is seen as instrumental to entry. One said: "I want to be an engineer, and I'll be competing with whites; I want to be ready for that." Another from a predominantly white high school said: "I want to be a journalist, and my English teacher said the best school of journalism was at the (white) University." In this context, it should be noted that other studies indicate that most of our interviewees had achieved exemplary high school records, whatever their admissions test scores. In short, we believe we were dealing with young people who had experienced academic success, and who could consequently shoot high comfortably. The absence of perception of quality, among our subjects, in black institutions is somewhat alarming (incidentally, almost two-thirds reported they had also applied to black institutions and had been accepted).

Our data do not permit any safe generalizations about the impact, on choice or aspiration, of prior experience in integrated vs. segregated high schools. For those blacks in four-year colleges or universities, a little more than half came from schools with at least token desegregation. It was clear, however, that few had experienced what they perceived as a close or personal relationship with white individuals or groups, and that our group contained few if any who had been active in racial disturbances in the schools or who had experienced trauma from racial unrest. Instead, some reported high hopes at the time of choice of getting away from any danger of ugly confrontation by moving to the "raceless" white university setting, and many stated that in shooting for a role in a white or color-free world they felt they needed to and would learn how to "get along" with whites.

Thus, our black students seemed at the point of college entry to be reasonably confident and unfearful: excited about their forthcoming opportunity to get a first-class citizenship; and open to color-free friends and culture. What did they find?

Our personal interviews were with freshmen toward the end of the first year; our group discussions were with sophomores, juniors, and seniors. The major, and most significant and undeniable, though surprising, aspect is that *experience in the white senior college or university in most cases* (*there are some significant exceptions*) *seems to lead the student toward an increasing awareness of his blackness, toward an identity not with all people but with black people.* One student, asked how he had changed since coming to college, put it simply: "I've become bitterer and blacker." What do their comments and reports indicate may be responsible for this turn-about?

Some comments indicated that a part of the "becoming blacker" phenomenon is the simple fact that blacks are an identifiable minority in the student bodies. One student said: "I want to show myself as a Negro more—we are so few." Another said: "It's nice to be around someone of your own race—I don't know what I'd do if I was the only black at this university."

Another contributing factor—and, in any case, a major problem in its own right—was the limited range of heterosexual social opportunity most blacks found. On most campuses, black students reported unusual efforts among themselves to have their own place for informal

social activities, or expressed great frustration at having to go back off campus to make the broader friendships white students found a natural on-campus benefit. They, like white students, see college not only as a period of preparation for adult work role but also as one where heterosexual activities are crucial to personal growth and satisfaction. On the campuses, heterosexual social life and institutionally organized or sanctioned events—e.g., the big dance—are conspicuously white. One black student, a popular athlete, placed the critical point of self-questioning at a party weekend: "I wanted to go with my (white) friends, but I couldn't get a date—and suddenly I found myself asking, 'What will they think if I try to dance with their white chicks?' Then I thought: 'Will they be insulted if I don't?' It ended up that I got so upset I got sick and couldn't go anyway."

Another observation was that many of the black students experienced events in which they perceived a racial prejudice directed toward themselves, with resulting alienation from students in general and refuge among the more separatist black upperclassmen. One black, a valedictorian in a white high school with token integration, came to campus for the first time two days early to soak up the new dreams of fraternity and eventual success. He reported a late evening stroll the first evening, and confrontation by a carload of whites of student age who stopped and yelled: "Hey, Nigger, what are you doing here?" Suddenly, he reported, the campus didn't seem as safe, and he ran to his room and remained locked in without food until registration. Although he reported he felt better later, the event was traumatic and had placed him on guard. Another black student was convinced that indignities of freshman hazing he had experienced personally were overt attacks because of his color. At the very least, the blacks we interviewed frequently seemed to appear particularly sensitive to any rebuff in general in give-and-take with white students; at most, there probably were some genuine slanders that could only serve to call attention to prejudice where they had least expected it. One thoughtful student observed: "They (white students) are half-way prejudiced . . . just getting so they can partially conceal it." Another, strangely but plaintively enough, said: "The white students here are friendly to me only because I'm black."

The data seem to suggest that some of the problems black students experience are rooted in differences of background and experience between the members of the white and black subcultures. Many more of the black students may have held and needed to hold jobs; values and interpersonal styles are known to vary as a function of socioeconomic background. One student expressed his reaction this way: "The white students here are a bunch of pampered, prejudiced punks." The impartial observer can see that boys from the poor side of town could only view the majority culture of peers in college as pantywaists. Another black freshman said: "I've become cold, hard, cruel, calculating, prejudiced, unfeeling, (obscenity meaning blatantly deceptive); *I have to be just like the whites in order to survive here.*" A third observed: "To come to (name of University) for a white man means a continuation of the fantasy *they* call life; but to a black coming here, it is an awakening to the deficiencies of our society and to the great necessity for change."

In spite of the fact that black students in the target institutions in general are known to have lower academic averages and higher attrition rates than their white student counterparts, we could detect no groundswell of feeling of oppression by academic demands, or unusual concern about performance. Most seemed to have expected that academic success would require hard work (although most had said they had had no information before entry as to how hard they would have to work); and, although this perception did not change with experience in college, we could seldom detect dissatisfection with grades, or apprehensions about not being able to retain good standing, or frustration from the amount of effort required. Recommendations for easing the adjustment of future generations of black students centered on the interpersonal elements of college life, not on tutoring or special remedial efforts. That the difference in levels of performance was recognized may be attested by the frequent observation that the Black with outstanding grades is of the white establishment, and a poor recruiting prospect for active membership in the campus black brotherhood. A few felt some instructors were prejudiced, but more reacted to the unexpected mediocrity they had found in some of their teachers.

Feelings about black courses and black faculty seemed to echo, but only to echo in our context, the well-known demands. One student noted that in a hard-won course covering work of black poets, the black students dominated the discussions, yet the white students at written exam time got the good grades. Many seemed to feel that their new experience with whites in itself helped them to identify unique aspects of their own cultural heritage.

On the matter of supplementing the one or two black instructors on most of the campuses with additional black instructors, the black students—particularly the upperclassmen—seemed to feel that the college could only be a white institution; and, that black faculty must choose either to become part of the establishment, or to become part of the black student sub-culture, losing their utility as their black spokesmen either way. The answer, then, was "more black instructors, of course." But the students' outlook for changes they felt needed if more black faculty members were obtained was bleak.

The black upperclassmen in particular seemed to hold strong perceptions of the college administration as the epitome of white establishment and therefore natural enemies. One student noted that his university president, whom faculty and other administrators in the area regard as most liberal and creatively and honestly dedicated to all students, was an impossible and prejudiced opponent: he had been asked by the black student group to designate a place and to provide $3000 to decorate that place for black students. "You know the *President* runs the college, but he hedged with all this (nonsense) about budget and trustees . . . we hit the white businessmen in town, and had our $3000 in two days, and then we made him give us a room in the student union by sitting in his office until he did."

Such instances can be interpreted as selfish requests for special consideration by immature militants, who use improper means to get what they want; or, as evidence of a reasonable student naivety about the total responsibilities of an administrator, and the ways budgetary and other decisions must be made in a university setting; or, as the black

students interpret it. The significant observation is, the writer feels, that as the progressive polarization of black students occurs, the task of responsible universiy officials becomes more difficult; and, that as particular needs become more acutely experienced by a particular sub-culture, the more that sub-culture is solidified and the more it may regress to whatever characteristic ways within the sub-culture redress is achieved.

Earlier and more biased interpretations of the black students *vis-a-vis* administrators were held by the writer until he entered into a long discussion with an aggressively militant black student leader with whom he seemed to have achieved special rapport. This student documented at great length the special efforts at his college to keep athletes academically eligible, and to provide special privileges that were denied other students. Yet, he reported, the college and administrators professed publically the primacy of the academic and humanitarian goals to which that college was committed, and their special interest in increasing and accomodating thhe ranks of black students on campus. The black students, it would seem from all our evidence, are not unaware that federal pressures, rather than desire to serve them, may have bought them a place; and, that the American university has, and cannot hide from students who feel discriminated against, actual practices which run counter to cherished philosophies.

Within the data mass produced by the reports of interviews and recorded discussions, the writer can find no evidence that the black students see any special instructional efforts by faculty, or any special programatic treatment, that is to them worth noting. Similarly, they seem to attribute no facilitation or easement of black student problems to white students. This may, of course, be a matter of limitations of awareness or of what they feel appropriate to discuss, or a function of all the forces that increase their distrust and dislike of whites (more than one-third of the interviewees stated, when asked if their attitude toward whites had changed, that they had become more distrustful or hostile).

Instead, there seemed to be a rather remarkable recourse to becoming more independent, or to their black brothers and sisters. The resulting solidarity appeared, in the reports of activities of Movement groups, to result more in group effort to help the black newcomer and each other survive the academic and social rigors than to provide a vehicle for agitation or presentation of non-negotiable demands.

It was noted earlier in this paper that there were exceptions to the phenomenon of increasing polarization as a correlate of experience on the white campus. Very occasionally, these were *individual*—e.g., the student with superlative academic record. More frequently, the exceptions were *institutional*.

The *striking* exceptions were the students from the (four) two-year public institutions. Their representatives sat almost open-mouthed in the groups as the four-year college representatives talked. One, from an institution with only some eight percent of the student body black, stated expressly that before he had sat in on the discussions, he had never thought of his two-year college as predominantly white. This feeling permeated the attitudes and reports of the students from the community colleges.

Consideration of the many possible explanations, made in the light of the data, suggests to the writer that one critical factor may be the community and non-residential nature of these institutions. In a real sense, the black students never leave home. The heterosexual social problems are solved by community rather than college resources. Another factor may be that these institutions are more frequently tuned to accommodating vocationally-oriented students, and that the aspirations of the black (and white) students entering are less complex and more effectively facilitated by the educational program. Another may be the remedial orientations, and the absence of discrepancy in test or past performance levels between white and black enrollees. Whatever the reason, the absence of strife, and the degree of affiliation by the black students with their institution, is rather remarkable, particularly against the common observation of a decade or more ago that prejudicial activity against Negroes was more likely to be exhibited by whites who were in fact threatened by black academic and occupational competition.

Confronted with such speculations, however, some of the black representatives of the senior colleges and universities could not agree. Instead, they tended to attribute this to the absence yet of the emergence of black student leadership. "Sooner or later," one student predicted, "a leader will rise up among them, and then you'll see what we've been telling you."

The finding, if the writers interpretation is correct, of a kind of institution where *integration*, rather than *desegregation*, appears to be occurring, can be viewed as comforting by many who are concerned with a new social order dedicated to equality of opportunity. Yet, that the numbers of blacks in the more senior institutions that provide intellectual leadership for the nation are so few, and that their experiences take on the colorations noted, strongly imply that there is much research, development, and innovation ahead of national interests and the real needs of all our citizenry are to be served.

The initial postulates presented in this paper—that some critical barriers to equal access to higher education in our society are subtle, and that new kinds of instructional strategies and learning environments must be achieved—would seem to be affirmed.

Federal involvement in equal opportunity must, it would seem, go beyond legal coercion, and beyond massive financial support of individuals and institutions as they pursue their usual goals in their characteristic ways. The proposed National Institute of Education must, as a federal agency, assume some leadership role in implemeting research and developmental activity directed toward:

The more effective pre-college preparation of the disadvantaged by our public schools, through program elements such as those already proposed in the Preliminary Plan.[4]

The more effective recruitment of disadvantaged to higher education opportunity, through studies of what factors motivate disadvantaged to choose "atypical" higher education settings, and through showing how the findings may be implemented.

The more realistic orientation of disadvantaged to higher educational opportunity and to the demands higher education will make on them.

[4] *Ibid.*, pp. 57–60.

The more effective educational, social, and personal treatment of "atypical" students in institutions of higher education, toward facilitating the integration of these students into the mainstream of college and American life, in modes feasible to employ in our higher education settings.

The determination of better administrative and management strategies for higher education in providing for the needs of disadvantaged students as well as of other students.

At the institutional level, the effective resolution of the more difficult problem of helping the traditionally black institution to become an equal partner in the national higher education enterprise.

The more successful infusion of programatic solutions into a kind of American institution hide-bound, to a remarkable extent, by its belief in its tradition, self-sufficiency, independence from outside pressure, and capability to solve its own problems; and, at the same time, the better mobilization of the nevertheless rather ramarkable resources of American higher education institutions to aid in achieving the programatic and societal evolution necessary to make equal opportunity a reality.

APPENDIX

Summary of Research on Validity of Tests for Predicting Academic Performance in College of Cultural Minorities

The question of the meaning of scholastic aptitude test scores for blacks or other cultural minorities is not new, and a number of relevant previous research studies are available, either as part of the published literature or as unpublished institutional studies. The writer feels it is safe to say that the following conclusions, briefly documented here, tell a major story.

1. On scholastic aptitude or achievement tests, Negroes at a point permitting the beginning of college training tend to score significantly lower than Whites.

This fact is too well known to require documentation; a recent relevant statement, however, is that by S. A. Kendrick (1968), who has estimated that "not more than 15 percent and perhaps as few as 10 percent of Negro high school seniors would score 400 or more on the verbal section of the SAT (Scholastic Aptitude Test of CEEB). Only 1 or 2 percent would be likely to score 500 or more." It is indeed this fact that is the pressure, if not the justification, behind current black student demands for abolition of test barriers. For, if tests are indeed used to screen applicants, more Negroes than Whites will be screened out.

2. Published studies of the ability of SAT to predict grades of black students in predominantly Negro colleges, however, show that SAT is as valid in this kind of situation as it is for whites in predominantly white institutions.

Typical of studies reporting this finding is one by J. P. McKelpin at North Carolina College, who reported (McKelpin, 1965) in his study of SAT and high school grades for predicting (black) students' performance at his institution (*italics in original*):

> *The predictive validities based on the data for commonly used preadmission variables are as high as those usually reported for college freshmen . . . the SAT scores account for about 60 percent of the variation in the grades explainable by the data from the preadmission variables . . . when first semester grades are the criterion, SAT scores give a fair appraisal of the developed ability of students entering (predominantly Negro) colleges.*

It is true, however (probably because of the gross differences between racial groups noted before), that the use of tests directed at lower educational levels than the entering college freshmen have seemed more useful with Negroes in some instances. For example, a recent unpublished paper by John Hills of Florida State University and Julian Stanley of Johns Hopkins (Hills and Stanley, 1968) is abstracted by the authors:

> The two subtests of Level 4 of the School and College Ability Tests (SCAT) for school grades 6–8, are shown to predict freshman-year grades in the three predomnantly Negro coeducational colleges of a Southern state considerably better than did the Scholastic Aptitude Test (SAT), which was too difficult for approximately one-third of the enrolled freshmen. Relative improvement in multiple correlation for SCAT compared with SAT lessened when high-school grade average became one of the three joint predictors, apparently because high school grades of SAT-undifferentiated students supplied some of the missing intellective components.
>
> 3. Although relatively few studies have yet been done of the validity of SAT to predict grades for black students in *integrated* colleges, *the available evidence supports the conclusion of no difference in the levels of predictive validity of SAT for blacks vs. whites in such institutions, but also that if white-based prediction formulas are applied to blacks, these students as a group tend to perform below the predictions.*

In the first sophisticated study of the predictive value of SAT for Negro and white students in three integrated colleges, Cleary (1968) summarized her findings:

> In the two eastern colleges, no significant differences in the regression lines (SAT predicting grades, blacks vs. whites within a single institution) were found. In the one college in the southwest, significant differences were found, but it was the Negro scores which were over-predicted. Thus, in one of the three schools, the Scholastic Aptitude Test was found to be slightly biased, but biased in favor of the Negro student.

The 'bias' in favor of the Negro student in the Cleary study was a result of finding, in effect, that at one of the three schools, Negro students with a given SAT score and high school rank made *lower* grades than white students with identical SAT scores and high school ranks. Thus, if a predicted level of performance is used in selecting among applicants, Negro applicants selected would achieve lower actual performance levels than their white counterparts, though they would more likely be admitted.

A similar finding has been obtained by L. B. Wilson (1969), who has studied performance and other characteristics of black vs. white students in four College Research Center institutions. He concludes on this aspect of his data:

> An analysis of the relationship between Predicted Freshmen Grade (combining the Adminissions variables—SAT–V, SAT–M, Achievement Test average), indicates that traditional admissions criteria tend to be at least as correlationally valid for black students as for entering students generally. There is moreover some evidence that predictions made on the basis of standard formulae may tend to overestimate the first-year performance of black students in the several colleges studied.

Even more convincing are studies within the last year by Temp (1971) and the writer (yet unpublished). Temp collected data on black vs. white students in thirteen colleges over the country, and concluded: "If prediction of (. . . the grade point average in college) from SAT scores is based upon prediction equations suitable for majority students, then black students, as a group, are predicted to do about as well as (or better than) they actually do." The writer obtained similar findings in six public institutions in a Southern state.

A survey of the literature by Flaugher cites a review by Kendrick and Thomas (1970), and notes a host of studies—Boney, (1966): Hills, Klock, and Lewis (1963): Roberts (1962, 1964): Stanley and Porter (1967): Olsen (1967): Cleary (1968): Morgan (1968): Munday (1965): Thomas and Stanley (1969): McKelpin (1965) Funches (1967): Perlberg (1967): and Peterson (1968). These have involved SAT, tests of the American College Testing Program, and other similar college level tests—both separately and in combination with high school grades. Rather than finding in these any evidence of reduced predictive validity (than that typically found for white students) Flaugher notes that test scores predict as well for blacks, and that in a large number of instances they provide better estimates of performance in college than do high school grades—a finding that may reflect the kinds of secondary schools that as recently as several years ago most blacks attended.

Flaugher also notes a number of applications to prediction of job performance—Tenopyr (1967): Grant and Bray (1970): Campbell, Pike, and Flaugher (1969)—where tests are found to overpredict, not underpredict job performance when applied to non-whites. Tenopyr (1967, p. 15) calls it "unfair discrimination (which) however, would favor, not penalize, the Negroes." Flaugher adds the explanation afforded by Rock (1970) that motivation toward achievement in college is typically a white middle-class phenomenon, and that non-whites may not be as likely "to utilize to the maximum what aptitudes they possess." There may also be problems of less adequate preparation, poorer study skills, and the intrusion of anxieties that may arise from being in a real minority in the majority college culture. All this recent evidence indicates, as in the first Cleary study, that the use of SAT or similar tests may lead to accepting Negroes who are poorer academic risks than lower-scoring whites who may be excluded if similar standards are employed. This is not to state that such admissions should not take place: rather these findings are cited to show an absence of evidence for the frequent claim that tests are biased against Negroes. For,

if there is a bias, it is in the social and educational system in which these students were reared.

4. If one attempts to make a case for bias in academic tests because certain subgroups of the population make lower scores than others, the evidence points to deficit as a result of cultural disadvantage rather than as a result of racial origin.

Cleary and Hilton (1968) studied performance on the Preliminary Scholastic Aptitude Test for grade 12 students in integrated high schools. When blacks were compared with whites *of similar socio-economic levels*, they concluded:

> From the bivariate plots of sums of items scores, it was apparent that there were few items producing an uncommon discrepancy between the performance of Negro and white students. It must therefore be concluded that, given the stated definition of bias, the PSAT for practical purposes is not biased for the groups studied.

5. Experience with special remedial programs for high-risk students, (e.g., students whose test scores indicate high probability of academic failure), or attempts to improve test scores (and grade performance) by special coaching, seem to indicate that at the very least unusual efforts will be needed to improve academic performance.

For example, after reviewing a large body of the literature on remedial education in the community junior college, Roueche (1968) concludes:

> The large majority of students who enroll in remedial courses fail to complete those courses satisfactorily and are doomed to failure or are forced to terminate their education. In one typical California public junior college, of the 80 percent of the entering students who enrolled in remedial English, only 20 percent of that number continued on into regular college English classes.

In a study of the effect of well-contrived and intensive instruction (though of short term duration from 4 to 6 weeks) in the kinds of cognitive tasks involved in scholastic tests, S. O. Roberts of Fisk University and D. B. Oppenheim of Educational Testing Service found (Roberts and Oppenheim, 1966) with students with inadequate instruction in the past that "it does not seem reasonable to expect that similar short term instruction given on a wide scale would be of significant benefit to disadvantaged students."

6. From institution to institution, and from year to year, the specific validities of preadmission indices will vary.

This is the matter of widespread experience; it probably results from a combination of factors: differences in curricula, heterogeneity of students, difference in institutional evaluational styles, etc. (This matter assumes added importance in the present context, however, for it is reasonable to assume that if an ability-free system of instruction were developed, then our present conventional tests of ability would not be relevant to predicting success in that system.)

7. Among senior colleges and universities over the country or in many state systems, the traditionally black institutions tend to have students of lower test and high school performance levels than are generally achieved by black students attending traditionally white institutions; on tests and performance indices however,

the means of some institutional groups of black students are higher than the corresponding means of some other institutional groups of white students.

No published reports of this pattern in higher education are known, although it has been noted in the public schools within state or large city systems. (Documentation for a state system of higher education will be available shortly in a report in preparation by the writer.) The major implications are two-fold: First, there are traditionally white colleges where many more black students than apply would not appear, from preadmissions measures, to be at a competitive disadvantage—although, these are smaller, frequently private, schools that are not as active as others in recruiting black students. Second, the traditionally white institutions are nevertheless eroding the top of the black talent pool, if talent is measured traditionally, and many traditionally black institutions will shortly be able to demonstrate the effect of lower levels of talent than they have previously enjoyed.

What may be drawn from these conclusions, if they are indeed essentially correct? The writer feels strongly that further exhaustive study of our present tests and potentially restrictive admissions procedures take time, energy, and more importantly, attention away from the real issue. That is, we need in higher education to focus instead on the study of curricular, instructional, motivational, and total educational environment strategies that may ease or void whatever cultural disadvantage exists, and that may permit real and rewarding learning experiences for these students. Then, research involving tests should be directed not toward proving that our current measurement procedures are biased or are not biased, but rather toward creating new measures that may facilitate their identification of what settings and what instructional strategies are effective with what kinds of students—with behavioral objectives set in terms of the needs of society, not in terms of the seeming limitations of certain identifiable subgroups.

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WOMEN IN ACADEME

By PATRICIA ALBJERG GRAHAM

American colleges and universities, struggling to accustom themselves to the state-of-siege mentality in which, it seems, their present and future work must be carried out, are in for another round of crisis—this one dealing with the "woman question." In colleges and universities throughout the country, high pressure has been applied by women intent on securing rights equal to those of men in academic position and preferment. In this atmosphere, many academic administrators must look wistfully back to the first two centuries of higher education in the United States, when women were simply excluded from collegiate precincts. From the founding of Harvard in 1636 to the opening of Oberlin in 1837, it was not possible for a young woman to attend college in this country. By the mid-19th century, some American colleges had begun to admit women to their classes, in response to pressures similar in some respects to those effecting higher education in the United States today. One source of the pressure was ideological—the conviction that women were entitled to the same educational opportunities as men. From this stimulus, which, significantly, was contemporaneous with the abolition movement, came the establishment of certain colleges designed specifically for women, and of others which admitted both men and women. But the major impetus for women's higher education came in the second half of the 19th century, a time of dire economic need for many colleges, caused chiefly by shrinking masculine enrollments. The sag in college attendance was attributed to the Civil War, to economic depressions, and to dissatisfaction with the college curriculum. College trustees and presidents saw women as potential sources of tuition revenues that would permit the colleges to remain open. The principal reason, then, for the 19th-century breakthrough in admitting women to colleges with men was economic rather than ideological, and these circumstances were not highly conducive to developing plans that would take particular account of the educational needs of women. Even such state institutions as the University of Wisconsin first admitted women during the Civil War when many men students had joined the army.

In the present movement toward coeducation at some of the well-known single-sex colleges, particularly Princeton, Yale, Vassar, and Sarah Lawrence, economic considerations are again an important basis for the decision to admit members of the opposite sex. The current financial dilemmas of many colleges and universities are well known but the cure is no longer simply a matter of enlarging the student body. Although these institutions are not short of applicants, some of them at least believe that the most outstanding high school graduates are choosing other, coeducational colleges because of a desire not to be isolated from young persons of the opposite sex. This is an economic

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argument of a rather more sophisticated type, based on considerations of human capital. In some cases the admission of women follows by several decades the abolition of quotas for Jews and, more recently, the initiation of efforts to admit blacks. Again, the parallel with the mid-19th century is striking: the women's rights advocates rode the coattails of the abolitionists much as the current feminists are trailing the black power movement.

THE CURRENT SITUATION

What, then, is the current situation for women in academe? Women constitute about 18 percent of the staffs of institutions of higher education, being distributed principally at small colleges and universities and in the lower ranks of other institutions. They tend to be concentrated in such fields as education, social service, home economics, and nursing. For example, 6 of the 11 women who were full professors at the University of Chicago in 1968–69 (there are 464 men full professors) were in social work. At present 2 percent of the full professors at the University of Chicago are women, in contrast to 8 percent at the turn of the century, when Chicago was (as it still is) one of the top half dozen universities in the nation. Alice Rossi reports[1] that 30 percent of the Ph. D.'s awarded in sociology go to women but that only 1 percent of the full professors in sociology in top graduate schools are women, 5 percent are associate professors, and 39 percent are subprofessorial appointees, such as "research associates."

After the Civil War very few colleges were established solely for men, the major exception being Roman Catholic institutions. The most important women's colleges were still in the East, where traditional institutions of the Ivy League—as it would later be called—dominated the educational scene; these, on the whole, saw no need to include women. In the West, where endowments were small or nonexistent and the financial pressures were greater, resistance to the admission of women was much less. There the critical institutions were state universities, and by the turn of the century most were coeducational. There, too, the denominational colleges, limited as they were in endowments and dependent upon tuition, and now in competition with the less expensive public institutions, frequently became coeducational. The argument is sometimes made that the important role the women on the frontier played is substantially responsible for the greater degree of coeducation in the West. Although this may have been a factor, it seems not to have been as determining a one as the economic considerations, or as the nascent women's rights movement, which was heavily centered in the East. Well into the 20th century the single-sex colleges in the East remained the prestigious places for young women to be educated.

By 1920 women constituted 47 percent of the undergraduates in the country and were receiving roughly 15 percent of the Ph. D.'s. In 1930 the proportion remained about the same. Today women constitute only 40 percent of the undergraduate student body and receive about 10 percent of the doctorates. The total number of students, of course, has increased enormously during these years. Although the percentage of women receiving doctorates is rising gradually from a low in the late

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1950's and early 1960's, it still has not reached the high attained in the late 1920's. Various studies have also shown that between 75 and 90 percent of the "well-qualified" students who do not go on to college are women.

The 2 percent figure for the proportion of full professors who are women also applies at Stanford University, where 15 percent of the graduate students are women. At Columbia University, which has probably granted more doctorates to women than any other institution and has for years enrolled a high proportion of women in its graduate departments (about 20 percent), just over 2 percent of the full professors are women. Barnard College, the women's undergraduate division of Columbia, which has its own faculty, for many years in the first third of the 20th century hired women primarily, as did most of the other women's colleges. Since World War II the proportion of men professors has risen steadily. Barnard still has a higher proportion of women on its faculty than any other of the "Seven Sister" colleges (only six of which have separate faculties), probably because there are more highly educated women in New York City than in South Hadley or Poughkeepsie. The representation of women at Barnard in 1968–69 in the professional ranks is still weighted heavily at the bottom, with women constituting 82 percent of the nonprofessorial teaching staff, 64 percent of the assistant professors, 54 percent of the associate professors, and a mere 22 percent of the full professors. Nonetheless, Barnard still has a woman president, whereas only one of the other five faculties (Wellesley) is presided over by a woman. Mary I. Bunting heads Radcliffe, but it does not have a separate faculty. In the last 5 years men have replaced women presidents at Vassar, Bryn Mawr, and Sarah Lawrence. Both Smith and Mount Holyoke have men presidents. Kirkland, the newest bidder for prestige as a women's coordinate college, has a man president.

Recent studies, such as Helen S. Astin's,[2] indicate that, contrary to the dire pronouncements of some graduate school officers, women who receive Ph.D.'s are likely to use them in a professional capacity. Ninety-one percent of the women who received doctorates in 1957–58 were employed in 1964, and 79 percent of them had not interrupted their careers during that time (*2*, p. 57). Even more startling to those of both sexes who assume that the reason women are not in better positions is that they do not publish enough is the research of Rita Simon, Shirley Merritt Clark, and Kathleen Galway,[3] which showed that married women Ph.D.'s who were employed full time published slightly more than either men Ph.D.'s or unmarried women Ph.D.'s.

Other studies, such as one made by Lindsey R. Harmon and another by the National Academy of Sciences (NAS), report, on the basis of various measures, that women doctorate holders have somewhat greater academic ability than their male counterparts.[4] Further, women who were married at the time of receiving the Ph.D. were more capable academically than their unmarried female contemporaries. Nonetheless, the fate of married women Ph.D.'s is somewhat discouraging. The NAS report states:

> "In general, the rate at which women achieve the status of full professor is slower than for men, the average lag varying from two to five years in the biosciences and up to much as a decade in the social sciences. There is a marital status difference also. Considering data on women for all fields combined, the

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single women lead the married ones by five to 10 years. At any given time, 10 to 20 per cent more of the single than married women have achieved full professor status."

Not surprisingly, the NAS also found that the salaries received by married women in general were 70 to 75 percent of those received by men at the same interval after receipt of the doctorate. Salaries of single women were more variable, but on the average they were somewhat higher than those of the married women, though still markedly lower than men's salaries.

POSSIBLE EXPLANATIONS

Discrimination. One can think of various explanations for the considerable discrepancy between the ability and the professional position of women Ph.D's One possibility is overt discrimination, but obvious disregard of women scholars is not as common today as it was in earlier years. The confident announcement of a senior professor in a leading history department less than 10 years ago that, as long as he was a member of the department, there would never be a woman professor in it was at the time accepted without a murmur. His view held sway until his retirement. Now, in that department of nearly 50 full-time members, one full professor and one assistant professor, both in esoteric specialties, are women. Explanations given by the department for the absence of women from the populous fields of European and American history are vague. For many years about 15 percent of the graduate students in that department have been women. The discrimination is now much more subtle and less easily countered.

Internal ambivalances. Preeminent among the reasons for the poor representation of women in the higher echelons of the professional world is a psychological-cultural one. Ellen and Kenneth Keniston of Yale University have written perceptively about the "internal ambivalences" that most American women feel about combining career and family.[5] These ambivalences are especially acute in the years between 18 and 25, years which, in this society, men generally devote to intense preparation for a career. For women these years are likely to be a time in which seek affirmation of their femininity, an activity likely to be at variance with serious vocational commitment. These activities are certainly not the only ones young people engage in, but they are likely to be the ones invested with the greatest psychic energy.

Some young women are able to do graduate work and to do it well in these years, but few pass through this period without severe qualms about the desirability of planning for a demanding professional life. Men, too, are beset by a variety of doubts during these years, but for the majority of them, at least, academic success does not bring substantial psychic problems as it does for women. Matina Horner has recently given unfinished stories, identical except for the name of the protagonist, to groups of young men and women for comment.[6] In one set "Bill" is at the top of his medical school class; in another set "Anne" is at the top. Both the young men and the young women believed that Bill was headed for a bright and happy future whereas many believed that Anne would face many problems as a result of her academic achievement. Matina Horner concludes,

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"For women, then, the desire to achieve is often contaminated by what I call the *motive to avoid success*. I define it as the fear that success in competitive achievement situations will lead to negative consequences, such as unpopularity and loss of femininity."

To expect young women to buck the cultural standards for females is to demand of them much more than is expected of any man attempting to succeed in his field, since men are supposed to be successful. The problem for young women is not eased by the fact that they see few women occupying positions of importance in the academic, professional, and business worlds. Some of those who are there are unmarried, and few young women deliberately choose the single life. Others are the rare individuals who manage to marry a brilliant and successful husband, have five children, write intelligently on a variety of topics, assume a major administrative position, and at the age of 40, be featured on the beauty pages of a woman's magazine. Most young women rightly recognize such an achievement as truly exceptional, and girls in this society do not think of themselves as conquerors of the world. "Models" of this sort sometimes lack effectiveness because undergraduates simply refuse to aspire to such heights.

Aspiration and expectation. The problem of aspiration is closely tide to the internal ambivalences. If one is uncertain about whether one should have a career, one cannot aspire, either publicly or privately, to be an art historian, a plasma physicist, or a professor of philosophy. Women's low expectations for themselves so infect the society that both men and women refuse to think of women as generally likely to occupy important posts. A riddle currently popular in the cocktail party circuit concerns a father and son driving down a highway. There is a terrible accident in which the father is killed, and the son, critically injured, is rushed to a hospital. There the surgeon approaches the patient and suddenly cries, "My God, that's my son!" The group is then asked how this story can be true. All sorts of replies requiring immense ingenuity are forthcoming: complicated stepfather relationships are suggested, sometimes even artificial insemination. Almost invariably the storyteller must supply the answer: "The surgeon is his mother."

The problem, then, of aspiration and of expectation is acute. The Kenistons have pointed to the absence of an aristocratic tradition in America as one factor depressing the level of women's aims. They point out that in Europe "women of the upper classes have had enough leisure and freedom from family needs to permit them, if they choose, to 'work' outside their homes." Except in the South and possibly in the Boston area—both places which have nurtured a number of unusual and talented women—the United States has lacked, not to say discouraged the growth of, such a leisured class. The South, which in this respect as in so many others does not fit the usual generalizations, has produced some of the best-known contemporary writers in America, such as Flannery O'Connor, Katherine Anne Porter, Eudora Welty, and Carson McCullers.

But Boston and the South cannot change the nation, much as both have sometimes wished to try. There are few hard data on the question, but the number of women Ph.D.'s in the United States today who have close ties to another cultural heritage is probably substantial. For example, both the first woman full professor at Princeton (who was ap-

pointed to the professorship in 1968) and the recently named special assistant to the president for coeducation, at Yale, the former a Ph.D. in sociology and the latter a Ph.D. in chemistry, came to the United States as young girls, one from Austria and the other from Germany. The author of the most recent major work on women Ph.D.'s herself grew up in Greece. A leader of the Columbia Women's Liberation Movement is English. All these women have direct experience with another culture and presumably recognize a greater variety of options for women than the stereotype of middle America currently exemplified by Mrs. Nixon and Mrs. Agnew.

Another substantial category of women Ph.D.'s is comprised of the daughters of professional women. Learned pediatricians and psychiatrists to the contrary, the daughters of working mothers seem more inclined to pursue definite career patterns than other women are. My own mother received her Ph.D. in 1925 and taught in Alabama State College for Women until her marriage and then only sporadically (she was a victim of the nepotism rule). When Princeton hired its first female assistant dean this year, the university selected a woman whose mother is director of the New Jersey State Council on Aging. Mary Bunting's mother was a leader in public education in New York City.

No doubt Princeton and other universities are completely unaware of the way in which their women fit into these three major categories, but the fit is striking. Incidentally, Princeton's second woman full professor, who will join the faculty in the fall of 1970, is a Virginian by birth.

The "internal ambivalences" remain for the girl of more or less ordinary ability. If she wants to marry, bear children, and also have a serious and responsible position, whom can she find to exemplify such a pattern? Unless she has gone to one of the women's colleges, which still have larger proportions of women faculty than coeducational institutions have, she is not likely to find many models, although probably more now than she would have found 5 or 10 years ago. If she is impolitic enough to suggest that something is wrong with a society in which it appears so difficult for a woman to achieve these kinds of goals, she is likely to be subjected to the harshest kind of argument—not anger but ridicule, as evidenced by the recent article in *Harper's* by a young Harvard graduate who had returned to the United States after several years in Europe and found to his consternation that a feminist movement was under way. In her formative state she may well opt out of a Ph.D. program or accept a "research associate" position instead of holding out for the degree or the assistant or associate professorship she deserves.

Publication. Another major reason usually given for the low proportion of women in top positions in universities is that they do not publish. This may well be true, despite the Simon-Clark-Galway study, which indicated that married women Ph.D.'s publish slightly more than men Ph.D.'s do. Simple numbers of items on bibliographies are not a guide to quality. Probably one of the most important reasons why most women Ph.D.'s do not publish as widely as men Ph.D.'s do, if this indeed true, is that they are not put into positions in which they must. Research and writing for publication are not easy, and a

great many people would not publish unless it was necessary. For example, if a young man is appointed an assistant professor at a major university shortly after receiving his Ph.D., the chances are better than nine out of ten that he is married. Presumably he is supporting his wife and his growing family. He knows that if he expects to remain at the university beyond his 6 or so allotted years as an assistant professor, he must publish. Furthermore, as his family grows he needs more money, and his wife, whose status in a community is largely a reflection of her husband's position, is usually eager for him to be promoted and may even be willing to help him with his research. Most important, a man expects to be a success, at least in a modest way, and most men are willing to exert some effort to achieve this.

A woman's situation is very different. One of the cardinal social rules is that she should not be more successful than her husband, especially in his line of work. Nearly half of the recent women Ph.D.'s who are married have husbands who also have professional degrees. For example, all but one of the husbands of the married women Ph.D.'s holding professorial appointments at Princeton in 1970 have doctorates. The remaining one expects to receive his Ph.D. at Harvard soon. But people in some circles question whether a woman with an advanced degree should succeed at all. The chances are that, if she is married, her place of residence has been selected because it offers the best position for her husband, not for her. Often, if she is teaching, it is in an institution less prestigious than her husband's, and there she is under less pressure to publish. Sometimes she rationalizes her nonresearch on the basis that research would not be helpful to her professionally anyway, so why should she bother. Her chances of having secretarial help and graduate-student assistance are probably less than those of men professors. In short, incentives for her to do research are generally missing.

Single women, who theoretically have much greater geographic mobility than married women, can seek a position in an institution in which extensive publication is not expected. In fact, until very recently that was about the only place in which they were likely to be hired, since the facilities of the most prestigious institutions were almost entirely male. Unless she published, she would probably not be hired away from the small institution at a higher academic rank. Often she need not publish because departments frequently assign onerous committee duties to women, who accept them too willingly and then use them as excuses for not doing research.

The problem of time. Another serious obstacle to women's (particularly married women's) professional advancement is the simple one of time. There are just not enough hours in the day to do all she must. A recent UNESCO study [7] revealed that the average working mother had 2.8 hours of free time on a typical weekday, as compared with 4.1 for a working man.

Another way of viewing this question is to note that women Ph.D.'s in the United States spend about 28 hours per week, on the average, on household tasks (2, p. 95). Although we are fond of talking of the great advances made by technology in freeing women from domestic tasks, the working mother's concern for children is not eased by possession of an automatic washer-dryer or dishwasher. What she needs, and

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what she finds increasingly difficult to find, is household help—persons who are competent and reliable and will assist her in caring for her children and running her house. Day care centers are certainly needed, but even they do not solve the problem of having to vacuum the living room and change the beds.

The suburban syndrome. Related to the problem of time and of inadequate household help is the suburban syndrome, in which both of these problems are accentuated. More and more Americans live in outlying urban area, and it becomes harder and harder for wives do find jobs that do not take them away from their homes for long periods of the day. If one must spend 3 hours each day commuting and then come home to perform the customary domestic chores, the amount of energy left at the end of the day is small indeed. In suburban communities domestic help is notoriously difficult to find. Complicating the picture even further is the usual social custom of such towns, in which people generally entertain at dinner parties in their own homes. In a city it is still possible to entertain one's friends by taking them to restaurants or concerts, but in many suburban communities there are no public facilities where one can spend a pleasant evening. The home and the overtired woman are expected to provide the serene environment in which friends can enjoy themselves. An obvious solution is simply to reduce one's social life to the barest minimum, but this exceedingly common way of dealing with the problem works hardships on the professional woman's family and on the woman herself.

The nepotism rule. A final obstacle that a woman Ph.D. (or sometimes her husband) faces is the nepotism rule, written or unwritten, that still prevails on many campuses. Although more and more institutions are now willing to have two members of the same family teaching in one institution, few regard with enthusiasm the prospect of having a husband and wife in the same department, particularly if both are at the professorial level. Since many professional women met their husbands in graduate school (the proportion of women Ph.D.'s married to Ph.D.'s in the same field is very high in all fields except that of education, where women are less likely to be married), the question of husbands and wives being employed in the same department is very likely to occur. Rarely is the wife given the superior appointment. Typically she takes a job in another institution or works part-time as a "research associate" at her husband's institution.

CORRECTIVE MEASURES

If these are the problems that affect professional women on academic faculties, what are some of the steps institutions might take to alleviate them? Until very recently universities were, on the whole, not conscious of discrimination against women. Administrators were—and many still are—fond of making pious statements to the effect that all persons were treated equally, that none was discriminated against. To say this is to raise the question of what "equality" really is. Is it simply appiying the same rule in all situations, or is it rather recognizing that the rules themselves may favor one group over another? For many years we gave standardized I.Q. and achievement tests to youngsters and assumed that we were treating them equally because we were

giving all students identical tests. In recent years we have come to see the fallacy of this policy, and we recognize that these tests have a "cultural bias." Although they met the standard of abstract equality, they failed to meet the comparably important one of actual equality. So it is with many of the policies in the university, which apply primarily to men. Women who wish to teach must meet these similarly "culturally biased" standards, and what is called equality in academe is only abstract equality and not actual equality.

Appointment to senior faculty and administrative posts. In order to achieve genuine or actual equality for women, colleges and universities need to make some adaptations. Preeminent among these is the need to recognize women's situations in their own academic communities and then to support them adequately. Probably the most important single factor in creating an environment that is as hospitable to the aspirations of women as to men is to appoint women in significant numbers to senior faculty and administrative posts in the university. Just as "tokenism" has been rejected for the blacks, so it must be rejected for the less militant feminine majority. The appointment of women to faculty posts will provide evidence for both male and female students, and for faculty colleagues, that teaching and scholarship of the highest standards can be attained by women as well as by men. The presence of women in senior administrative positions will also encourage the able young undergraduates and graduate women at the university to believe that a secretarial career, even a glorified one, need not be their vocational ambition, and it will remind the young men who will later be employers of women that women too can be expert executives. Male professors should see successful women of their own age among their colleagues, in order that the entire faculty can justifiably encourage women students to pursue additional studies or accept demanding positions that are in line with their talents.

No doubt it is also necessary, on most campuses, to increase the number of young women in the junior faculty and administrative positions at the university, but this is generally neither as crucial nor as difficult as the senior appointments. Many mature male professors find it much easier to appoint young women to junior and subordinate positions (where they have little power) than to appoint women of their own age to positions truly equivalent to their own. Sometimes it is possible to appoint women of mature years to junior administrative positions which might otherwise be filled by bright young men, but this kind of appointment may be more damaging than no female appointment at all. Few intelligent, alert coeds look forward to being rewarded in their middle years by promotion from departmental secretary to administrative associate when other administrative associates are 25-year-old men. At one leading university three assistant deans were men in their twenties or thirties; the fourth was a woman in her fifties. Many traditionally coeducational colleges are now replacing the separate dean of women and dean of men by a dean of students. Generally this reorganization, which is thought to be "progressive," means that a man is appointed. At one Midwestern state university where this was done the Dean of Women was nationally known and widely respected. The Dean of Students, who became her immediate superior, had no standing outside the community and not much locally, but he was of

the same sex as the all-male administration of the university, which had been coeducational since its founding in 1869.

Ideally the women at the university should represent a variety of life styles, just as the male faculty members do. Some should be dedicated, and probably single, scholar-teachers, and others should be women who manage successfully to cope with the demands of academic life and of home and family. Some may be concerned with the particular educational needs of women students, but others may not. In appointing women professors the institution will look first for scholarliness and teaching ability, not militant feminism. As the number of women on the faculty grows, the responsibility of individual women for exemplifying female academic accomplishment will decline, and this is as it should be. When there are but a few women on a faculty, excessive demands are made upon them; not only must each fulfill the usual academic requirements but she must serve as the token woman on all kinds of committees.

Part-time professorial appointments. If the academic institutions do move vigorously to appoint more women to their faculties, they might well consider expanding the number of part-time professorial appointments with full perquisites. "Part-time" has a poor reputation among academic administrators, largely because it is assumed that the part-time person is one who is in effect "moonlighting" from a full-time job. With women scholars this is not quite the case. They have no prior institutional loyalty or obligation. Women scholars, particularly those who are married, might welcome the opportunity to teach on a part-time basis with full professional recognition. The demands on their time and energies at home are often considerable, as noted above, but at present, if they wish to be taken seriously in their fields, they must accept full-time positions. To do so frequently requires an unusual endowment of energy. If they do not wish to teach full-time, they are generally consigned to the ranks of lecturers and instructors, where they are not eligible for sabbatical leaves and other academic perquisites. Such circumstances tend to depress the status of women in the university and do not foster conditions in which they are likely to do research, which is the major means of getting out of the lower-ranking positions.

If universities permitted and even encouraged departments to appoint persons to assistant, associate, and full professorships on a part-time basis, they would be able to staff their institutions with persons of divere interests and specialties whom they could perhaps not afford to employ on a full-time basis. In large departments these persons could supplement the traditional offerings, and in small departments which are not scheduled for substantial growth they could provide some of the necessary breadth. At senior levels, the university could select outstanding persons of proven accomplishment at salaries roughly comparable to, or less than, those now paid to lecturers and instructors. More imaginative research appointments for women might also be made along these lines.

Full provision needs to be made for opportunities for part-time faculty to shift to full-time status when the individual and the department agree that such a change would be desirable. Similarly, tenure should be available to part-time professors, just as it is to full-time

professors, and the same standard should be used in determining qualifications for promotion. Anything less would create a category of second-class citizens. Committee obligations, student advising, and the other duties associated with professorial appointments would be apportioned to part-time faculty members roughly on the basis of the full-time equivalent position; thus, for example, a half-time associate professor would have half the number of student advisees that a full-time associate professor had.

Obviously men as well as women might be interested in these part-time appointments and should be eligible for them. Departments should be cautious, however, about permitting large numbers of their members to be on part-time appointments, and they should look with some skepticism upon persons who want continuing part-time appointments in order to devote more time to remunerative activities for other institutions or businesses. These difficulties should be construed not as insurmountable but merely as requiring some additional consideration before a part-time professorial appointment is made.

Maternity leave. The appointment of women in significant numbers to faculties must involve a policy concerning pregnancy and maternity leave. Most universities currently have no such policy, and many administrators, when queried, reply that none is necessary. The principal reason why none seems necessary is that women have never been on these faculties in substantial numbers. Typically, a woman faculty member either manages to have her baby in midsummer or simply loses her appointment when she takes time off to have the baby. Not all women have been as fortunate as Millicent McIntosh, who was debating whether to accept the position of headmistress of the Brearley School in New York City. Her aunt, M. Carey Thomas, the illustrious president of Bryn Mawr, is supposed to have advised her, "Take it, you can have your babies in the summer." Mrs. McIntosh accepted the advice and went on to have five children and to become president of Barnard College. In short, academic women who become pregnant must handle this part of their life as they do all other parts—they must pretend to be as much like men as possible and not permit this event to interfere with the regular performance of their duties.

No university should be exploited by women professors who keep having children and expecting the university to pay them while they are on maternity leave. A more rational policy than the present one ought to be developed, so that pregnancy, of itself, does not discriminate against a woman scholar. It would seem that guaranteeing a woman a maximum of two 16-week maternity leaves, with pay, during her academic career would not bankrupt most colleges or universities. This would in effect be a one-semester leave with pay, twice in a woman's life. Additional pregnancies would be the woman's own financial responsibility.

Tenure. In many institutions the hurdles that must be run in order to achieve tenure are considerable. It is now standard in many fields to receive a Ph.D. when one is in one's late twenties. If the new Ph.D. accepts a teaching appointment at the assistant professor level, then ordinarily within 6 or 7 years the tenure decision is made. In many universities this means that the dissertation must have been converted to a publishable manuscript, and that some other scholarly research,

ideally another book, has been completed. This 6- or 7-year period coincides with a women's childbearing years, and, if one assumes that the couple wants two children, both are ordinarily born before a woman is 35. Therefore, the greatest pressures both for scholarly publication and for domestic performance coalesce in these years between the ages of 28 and 35.

One way of handling this difficulty is to grant women assistant professors an automatic 1-year extension, before the tenure decision is made, for each pregnancy they have, up to a maximum of two, during their nontenure years. This addition of 1 or 2 years before they are subjected to the scrutiny of their colleagues for the tenure decision would give them some additional time to complete the scholarly work necessary to justify promotion. Should they prefer that the tenure decision be made earlier, this could be done.

Husbands and wives on the same faculty. Another policy that colleges and universities would do well to adopt is one that permits husband and wife to serve on the same faculty. Twenty percent of the wives of junior faculty members at one prestigious university have Ph.D.'s, yet none is a member of the faculty. At a large Midwestern university throughout the 1930's, 1940's, and 1950's, one faculty wife published over two dozen articles and one book and coauthored two other books with her husband, yet was never permitted to become a member of the department, despite a research record superior to that of all but two members of the department. Obviously, having both husband and wife on the faculty can lead to some awkward circumstances, particularly if both are junior members of the same department and only one promotion can be made. The other frequently cited difficult case is that in which one spouse is a tenured member of the department and the other is up for promotion. The supporters of nepotism rules cite such cases with great alacrity, and they are absolutely right in pointing to the possibilities for hard feeling that can develop within a department. Nonetheless, the case is rarely made for the advantages of having two members of a family employed at the same institution. In this era of considerable faculty mobility and declining institutional loyalty, one way of insuring faculty support is to employ both husband and wife in positions commensurate with their ability and training. A husband and wife who both enjoy their work will be much less inclined than a single individual to heed the siren call of another university. In those fields in which collaboration is essential to research, husbands and wives are often much more effective as a team than either would be alone, hence the university is brought distinction by having both members on its faculty.

Although the problems should not be minimized and any department thinking of hiring such a husband-and-wife team should examine the situation carefully, any university rule which explicitly forbids such a practice should be abolished. Departments and senior faculty members should be strong enough to say starkly that only one spouse will be hired because only one is really wanted or needed, rather than dragging out a university regulation that officially prohibits the practice. The proportion of women Ph.D.'s who are married is increasing, and the nepotism question will become more acute.

Day care centers. A great boon to women faculty members with children would be the establishment of university day care centers. In these days of constricted university budgets this recommendation is perhaps the most expensive of all to implement, but it does deserve careful consideration. On those many campuses which now have nursery schools in connection with their School of Education programs for training nursery and primary school teachers, it would probably not be very difficult to convert these laboratory schools, which now function for the convenience of the School of Education, to all-day centers. For mothers to have a place where they can leave their children, confident that they will be well cared for, would be a tremendous help. Ideally these centers should be open to all employees and students of the university, with preference in admission given to children of women attached to the university. Thus the women graduate students who have children would have a real chance to finish the work for their degrees despite their maternal responsibilities. Similarly, women employed by the university in food services and custodial capacities would have a much better place to leave their children than is frequently now the case.

A less ambitious aid than a day care center would be a placement service for domestic workers maintained by the university for the use of women faculty, administrators, students, and employees. Most universities have an extensive employment office in which they screen applicants for various jobs in the university. If this office would also supply names and references for persons willing to do cleaning, housekeeping, or babysitting, this would be a tremendous help to women working at the university. Astin found in her study of women receiving Ph.D.'s (2, p. 101) that the difficulty of finding adequate domestic help was their single greatest problem.

Curriculum changes. A recommendation less directly tied to insuring the full participation of scholarly women in the university life, but nonetheless related to it, concerns the curriculum. Departments within the university should be encouraged to review their departmental offerings to be sure that women's experience is given adequate treatment. English courses in biography, for example, might well cover women subjects as well as men. Anthropology courses might give considerable attention to male and female sex roles in various cultures. Courses in American social history could probably do better by the experience of American women in the 19th century than the usual hasty reference to the Seneca Falls convention and the suffragette movement. Much greater sophistication is needed to deal appropriately with women's historical experience: the particular psychological and cultural factors affecting women at a given time are poorly understood. In this connection the professional associations, such as the American Historical Association or the American Psychological Association, can be of genuine service by sponsoring sessions at their conventions on questions of this kind, so that historians and psychologists can become aware not only of the issues but also of what some of their colleagues are doing about them.

Continuous review. Finally, most colleges and universities would benefit from appointing a senior administrator, or establishing a com-

mittee, to keep under continuous review the status of women on their own campus. This would in effect be an individual or a group lobbying effort for the cause of women at that institution. The administrator or committee would be concerned with matters such as faculty salaries, making sure that women and men received equal compensation for equivalent services. On most campuses some change needs to be made if women are to have truly equal access to the opportunities of the institution, and change usually does not come, in a university or any other institution, simply on the basis of goodwill. Some steps need to be taken to assure that the needed alterations will take place, and these are not likely to be taken unless some person or group recognizes that the responsibility for change is theirs.

Generally a university does not create a lobby within itself in order to create change. In that, too often administrations are forced to modify policies as a result of lobbies within the university that the administration did not foster. Unlike many other constituencies within the university community, women undergraduates (and to a lesser degree women graduate students) have not yet pushed for the cause of women on their own campus. Many women scholars on the faculty have not done so either, although such activity is now being initiated on some campuses, chiefly among the younger women faculty members and among women teaching assistants and graduate students.

The frequently drawn analogy between the status of blacks and of women in this society is perhaps least appropriate here. There is indeed much historic similarity between the two groups, particularly in regard to the way in which their respective heritages have been ignored, the patronizing manner in which both are treated, the economic discrimination both suffer, the inability of both to "pass" as members of the dominant race or sex, and, finally, the reluctance of some of the successful members of both groups to assist younger and more militant members to attain more satisfactory situations. In two critical areas, however, the analogy does not hold, and both of these are germane to the academic situation. One is the reluctance of young women, unlike young blacks, to band together to push for their own causes, and the other is the vastly more complicated relationship that women have with their so-called oppressors, males, than blacks have with whites. Unlike blacks, who can indeed develop a separatist mode of life, women as a group cannot. In the core of their lives they are deeply involved with men (whereas blacks are not inevitably tied to whites), and the nature of that bond is such that, for many women, an overt attack upon the male establishment is not possible. A major goal of the rapidly developing militant feminist groups is to increase women's sensitivity to their plight in this society. To do this many rely heavily upon informal conversations of women in small groups in which an effort is made to build a group solidarity. The hope is that these closer ties with other women will help "emancipate" women from their dependence—economic, social, and psychic—upon men.

A RARE OPPORTUNITY

So far the radical feminists have been most successful among women in their twenties and thirties, not yet among undergraduates. This laggardness in feminine militancy on the campuses gives university

administrations an opportunity to act to improve the status of women on their campuses before being confronted with demands—an opportunity of a kind that is rare these days. Difficult as it is for an academic institution to gird for change when danger is not imminent, the present moment is a time when universities can assume the leadership they have so rarely exhibited in these years of confrontation politics.

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[1] Alice Rossi reported these figures and other related data to the general business meeting of the American Sociological Association on 3 September 1969. They were summarized in a mimeographed document, "Status of Women in Graduate Departments of Sociology: 1968–69," circulated by the Women's Caucus of the American Sociological Association; for excerpts, see *Science* 166, 356 (1969).

[2] H. S. Astin, *The Woman Doctorate in America: Origins, Career, and Family* (Russell Sage Foundation, New York, 1969).

[3] R. J. Simon, S. M. Clark, K. Galway, *Soc. Probl.* 13, 221 (1967).

[4] L. R. Harmon, "High School Ability Patterns, A Backward Look from the Doctorate," *Sci. Manpower Rep. No. 6* (Office of Scientific Personnel, National Research Council, Washington, D.C., 1965); *Careers of PhD's, Academic* v. *Nonacademic, A Second Report on Follow-ups of Doctorate Cohorts, 1935–60* (National Academy of Science, Washington, D.C. 1968).

[5] E. Keniston and K. Keniston, *Amer. Scholar* 33, 355 (1964).

[6] M. Horner, *Psychol. Today* 3, 36 (1969); *ibid.*, p. 62.

[7] Reported in *New York Times*, 5 Mar. 1967.

OPEN EDUCATION: CHANGING SCHOOLS FOR CHILDREN

By EDWARD A. CHITTENDEN

Interest in "open education" has been growing at such a rapid rate during the past two or three years that it may be considered to reflect an educational movement of significant proportions. In part this trend has been stimulated by the reforms going on in the British primary schools. To a greater extent it testifies to the growing conviction on the part of parents, teachers and students, that our schools must somehow become more humanized—more responsive to the people they serve and less controlled by institutional routines and technological requirements.

At present this movement is loosely defined, as it has grown out of a variety of influences and encompasses a wide variety of educational programs. This paper attempts to identify issues which constitute the core elements of this general type of educational change and considers some implications for programs of research and evaluation. Although the paper centers on kindergarten and elementary school education, it is believed that these issues find parallel expression in changes currently going on at the secondary school and college levels.

It should be noted at the outset that the rapid growth of interest in open education has brought with it the hazards of well-intentioned but hastily formulated attempts at reforming the schools. Judging from the literature and from experience in the field, there are various interpretations of what "open" education is and what it has to offer. Some school systems are introducing "open education" through administrative fiat—trying to create instantly the kinds of programs that, by definition, require a substantial period of growth. In some schools there are isolated teachers who experiment in protest against the larger systems but who rarely have an influence beyond their own classroom door. In still other schools, walls are knocked down and the ages are scrambled, but not much thought is given to why these actions are undertaken or whether anything else should be changed. Finally, in reacting against the rigidities of the conventional curriculum, many educators perceive open education to be a rationale for "laissez-faire" classrooms in which adult planning is thought to be relatively unimportant or even harmful. Such experimental efforts can lead to better ways and may thus represent first steps in new and better directions. But they can also lead to disillusionment and to premature rejection of that which is sound in the movement toward "opening-up" the schools.

It should be obvious from these preliminary remarks that the phrase "open education" is not a very satisfactory one with which to designate a collection of educational approaches which may share only a few features in common. Other labels come to mind: "informal;" "unstruc-

tured"; "British infant school model"; etc. For the present time, however, as programs undergo definition and re-definition, "open," being freest in connotation, may be the most useful label.

INSTITUTIONAL MINDLESSNESS

If one criticism could be said to be the key to understanding current interest in open approaches, it would be that our public schools have become institutions of lifeless routines. The schools are accused of being utterly unresponsive to the needs of their constituents . . . their children, their teachers, and their parents. It is claimed that curricula, methodologies, and regulations, are carried out in such a way that the staff and the children are caught up day after day, in an enactment of routine exercises, in community after community, all of which goes under the guise of education. The widely read accounts of such teacher/writers as Holt (1964), Kohl (1967) and others have done much to stimulate thought about these issues. In a recent comprehensive study and critique, Silberman has documented the lifelessness and oppressiveness of many of our schools. He summarizes as follows: "Because adults take the schools so much for granted, they fail to appreciate what grim, joyless places most American schools are, how oppressive and petty are the rules of which they are governed, how intellectually sterile and esthetically barren the atmosphere, what an appalling lack of civility obtains on the part of teachers and principals, what contempt they unconsciously display for children as children" (1970, p. 10). In his view, as in the view of others, the heart of the problem is best characterized as a malady of institutional "mindlessness."

Insofar as the problem is perceived as institutional, there is guarded optimism about the possibility of bringing about change within the present system. "What makes change possible, moreover, is that what is mostly wrong with the public schools is due not to venality or indifference or stupidity, but to mindlessness," he says. (Silberman, 1970, p. 10).

If school programs can be opened up to the creative energies of their pupils and staff, much can be accomplished. To bring about major change, we do not need to wait for whole new crops of teachers, new sets of instructional materials, or overhauls of school buildings.

Other critics seem less optimistic about the possibilities of change within existing institutions. At the very least, they call for extensive training or external advisory support programs for teachers. Still others see a solution only in the development of new forms of schooling that are entirely outside of the existing framework.

Criticism of the school as an institution has been advanced not only by journalists and teachers but has also been emerging in the literature of curriculum development and evaluation. John Goodlad, for example, in reviewing a decade of educational reform concludes that past innovative efforts had made very little impact on the schools: "The findings were unequivocal. So far as our sample is concerned, school reform had been blunted on school and classroom door" (1970, p. 4). As visitors and observers, Goodlad and his staff were struck by the rigidity and unvarying character of the school day and by the fact that the schools continued to operate in ways which ignored the resources and needs of the communities they served. These are precisely the kinds of observations made by others.

In sum, the argument that the schools as institutions are failing our children is a broadly documented thesis that is finding an increasingly responsive audience. Seen in such light, the moves toward opening education can be considered to represent efforts to "re-humanize" the schools.

INVOLVEMENT OF CHILDREN

Several lines of action aimed at opening up the schools have been advanced. The most important of these, and the one that is most commonly stressed, is based upon the conviction that children should be given a central role in influencing the course of instruction. In part, this position rests on evidence (Piaget, 1970; Rogers, 1969) that learning which has meaning and purpose from the learner's viewpoint has a much more significant impact on developing capabilities than does the passive type of learning which is commonly associated with conventional programs. The position reflects the belief that this kind of educational environment can foster self-confidence and the skills to think creatively and constructively—qualities that should be the foremost concern of the educator.

Teaching in the open classroom begins with the assumption that the children come into a classroom with capabilities and experiences—shared and unique—and it is the teacher's job to see that these resources of the child give direction and meaning to his learning. Such teachers would take Ausubel's fundamental principle seriously: "If I had to reduce all of educational psychology to just one principle, I would say this: The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly" (1968, p. vi). The curriculum must therefore be adaptable to the child, not the other way around, Individual differences are prized, not deplored. "The 'child centered' attitude of the 'progressive' teacher is likely to involve a positive valuing of individual differences as against a mere toleration of them . . . This positive valuing of individual differences is evidenced, for example, by organizing classes heterogeneously with respect to ability and perhaps to age" (Tamburrini, 1971, p. 7). This is a viewpoint which leads to programs that clearly differ from the strict readiness programs in which the task is seen as one of preparing or remediating children to meet the standard curriculum.

Opening up to the children in such ways appears to be a principal accomplishment of the changes in British primary schools. There are now a number of accounts of what such class rooms can look like (for example, Howson, 1969; Rogers, 1970). Observers are struck by the diversity of activities that may be going on at any given time and by the fact that children take on a central role in determining the nature of these activities and in assuming responsibility for carrying them out. Instructional activities take many forms: these include interactions between the teacher and groups of children or an individual child; instruction from peers; activities with structured learning materials, with books and environmental projects, etc. The point is that children in such schools are expected to learn through many different means, in contrast to the conventional school where most learning is channeled through the teacher. The success of many British schools and the reports of those successes have served to convince many American educators that "it can be done."

INVOLVEMENT OF TEACHERS

A second major way to revitalize the schools is to open up new responsibilities and options for teachers and school staff. Many educators involved in the curriculum reform efforts of the 1960's have some to the conclusion that the scope and permanence of any innovative process is determined by the extent of staff involvement and commitment to that reform (Armington, 1968; Clark, 1965; Hawkins, 1968; Weikart, 1971). They suggest that the usual way of putting new ideas or materials into schools (e.g., introducing team teaching, new math programs, language labs) is like dropping a stone in a pond. The effect in ripples may be immediately apparent but after a while the pond returns to its original state; broken machines remain unrepaired; team teachers stake out old territories; "new math" becomes routine arithmetic. The superintendent and the inventor may have received some publicity in the course of the enterprise, but nothing of lasting significance has happened in the lives of the children in that school. To make efforts toward change more significant, these educators recommend a program of action that builds upon the staff's present capabilities and enlists them in experimentation. Sometimes the change toward open education have represented an abrupt change in what is required of the teacher. (Basal readers may be replaced by a variety of books; rows of seats are removed; projects replace workbook assignments; etc.) More often a more gradual course of change and experimentation on the staff's part is adopted. For example, the teacher might begin experimentation with individualized approaches in certain aspects of the curriculum, or at certain times of day, or in certain areas of the room. In any event, the important point is that the staff must take a central role in such experimentation. Without such continual participation, an open approach can be just another package that becomes routinized in its own way. While the staff needs to be able to draw upon the theoretical advances and discoveries of educational research and development, it is equally important that they remain alive to their own particular situation. To quote Goodlad again, ". . . the creation of conditions essential to the support and conduct of each individual school as a self-renewing change agent may very well be the prime educational challenge of the 1970's" (1970, p. 5).

There are currently several groups in the United States who are attempting to develop advisory systems of assistance to teachers as a mechanism for facilitating change. Advisory centers have been playing an important part in the development of schools in England, but the idea of the advisory is relatively new in this country, and is being tried out in several forms. Unlike the supervisor who is a general evaluator of the teacher's performance, the advisor seeks to establish a different sort of role. In place of general directives, the advisor seeks to give help and advice that is tailored to the needs of each school or classroom. "His aim always is to help schools realize their own unique potentialities and to help make change self-sustaining" (Armington, 1968).

The process of developing a successful open approach can best be described as an evolutionary construction on the part of the staff, not the implantation of a fully developed model. The paradigm of the

"teacher-proof" curriculum which has been associated with many experimental programs in early education during the past decade is profoundly different from the teacher-involvement paradigm that is so much a part of the open education movement. Understandably, the interested principal, parent and teacher mistakenly look for the open-education "package" or the "how-to-do-it" manual, when in fact there is no "it" that can be separated from persons who wish to "do it." The directions in which a school is changing, the substantive nature of these changes, and the prospects that growth and improvement will continue are really more important factors to consider than whether the school matches up to some external model.

COMMUNITY INVOLVEMENT

A third line of action in opening the schools concerns participation of parents and other members of the community. While not stressed in the British literature, community involvement has been the foremost consideration and point of departure for several efforts in this country (Harris, 1969). [It should be noted that an emphasis on parent involvement is not necessarily associated with concern for involving the children, although such emphases frequently do coincide.] To re-vitalize schools, there have been efforts to open the school to resources and talents of the surrounding community in the hope of making instruction more relevant to experiences of children and of bridging the classroom, home, and larger community. In conventional programs, the curriculum and associated hardware of a second grade classroom in urban New York may be indistinguishable from that of a second grade in rural Oregon or suburban Maryland. By contrast, a visitor to these more open settings would become much more aware of a specific community.

THE PROBLEM OF DEFINITION

Altenative ways of defining open schools have received attention in the literature. For some, "open" is seen in architectural terms: the walls between classrooms are knocked down. Others seek to introduce change by administrative rearrangements such as shuffling the ages and grades. Such alterations may or may not be accompanied by significant changes in the roles of adults and children. An open-space program, or a non-graded program, for example, need not necessarily lead to opening the schools in the senses discussed above.

In summary, no single set of objectives or instructional prescriptions can be drawn up to define open education in this country. Instead, there appear to be directions of change aimed at bringing schools back to life by making them more responsive to the children, the staff, and the community. There is no single document to which one can turn to discover what open education "really is." In fact, many practitioners are wary of the use of models or prescriptions in the belief that labels lead the teacher and parent to take up false issues and thus to lose sight of what is really going on in their schools. Mindlessness once again starts to replace common sense.

Examination of Educational Process

Concern with the roles of adults and children and with the setting in which education takes place makes apparent the need for evaluation procedures which adequately examine the process of schooling. As Jackson (1968) has pointed out, any educational program prescribes a setting for human activity and thus a way of life—at least a way in which young people are expected and required to live during many of their waking hours. While different educational programs may state similar objectives, they often establish very different methods in trying to reach these goals, thereby reflecting different philosophical assumptions. In evaluating current efforts at changing our schools, these assumptions should be made explicit, and accurate description of the quality of school life should be a foremost concern of the evaluator for educational processes may have greater influence on the child's development as a learner than any given body of curricular content.

On a practical level, the study of process is necessary insofar as judgments about a program's impact depend upon adequate information as to whether and how that program has been implemented. The point is a simple one but has often peen ignored in practice. Many evaluation designs (particularly in early education) end up treating all classrooms that bear the same label ("open," "computer assisted instruction," "Montessori," or whatever) as though they have actually been doing similar things. David Cohen (1970) discusses this problem at some length, particularly with respect to the evaluation of large-scale social action programs, and Rosenshine raises the issue in relation to instructional evaluation:

> In studies where teacher behavior in special curricula was compared with the behavior of teachers in "traditional instruction" . . . there often was significant variation in the behavior of teachers within each group. Although the number of classrooms observed in these studies is small, the results are consistent enough to cause serious doubts about whether all classrooms using the same curriculum constitute a single treatment variable. (1970, p. 280)

The complex problem of conceptualizing classroom process in ways which permit meaningful comparisons between educational programs has been a difficult one. In past studies, a commonly used dimension compares classrooms along some continuum of "child-centeredness" to "adult-centeredness." At one extreme is the setting completely controlled by the teacher and organized around highly structured lessons; at the other extreme are classrooms in which children supposedly set the entire direction of learning, and a wide variety of positions are in between.

An important finding which emerges from a close examination of the open approaches is that they do not fit comfortably at any point on such a scale. They are simultaneously child-centered and adult-centered. Children may be given more leeway in decision making, but despite such child-centeredness the adult does not withdraw into a supportive valet-type role. Instead, teachers are encouraged to adopt an experimental attitude and to come alive in their relationship with the children.

It is beyond the scope of this paper to attempt to analyze the teacher's role, but it appears that such qualities as respect and honesty are central to understanding how the adult and child can work together. When children can openly participate in establishing purposes of learning, then the relationship between teacher and child begins to change in the sense that the teacher's contributions are understood, by the child, as guidance in learning and not as general directives of uncertain intent that must somehow be complied with. In this context the teacher can be highly active in offering suggestions, introducing materials, demonstrating ways of doing things, expressing opionions, with the expectation that the children can react to the real content of such instruction.

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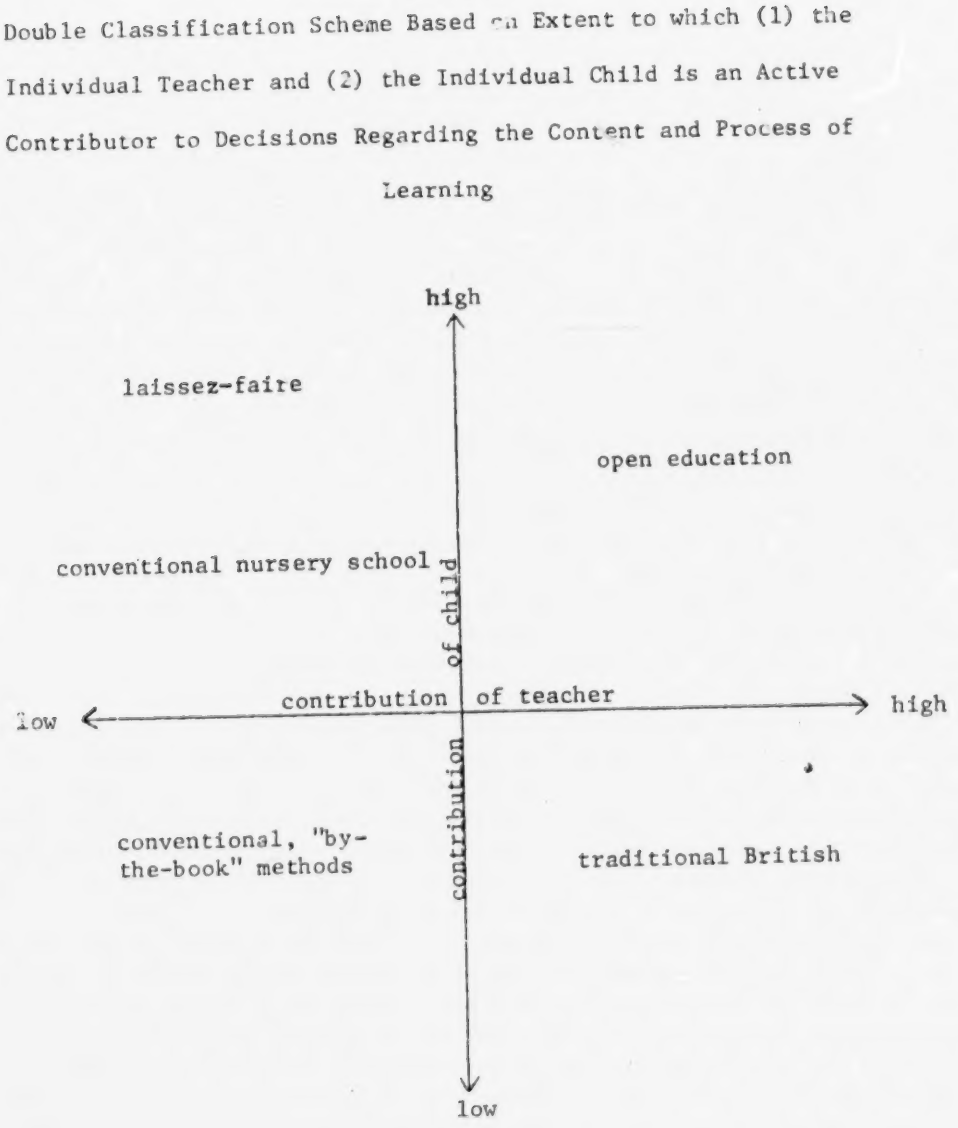
Figure 1[1]

Double Classification Scheme Based on Extent to which (1) the Individual Teacher and (2) the Individual Child is an Active Contributor to Decisions Regarding the Content and Process of Learning



1 adapted from Bussis & Chittenden, 1970

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In Figure 1 a scheme is depicted that treats questions of child-centeredness and adult-centeredness as independent dimensions rather than as opposite ends of a single continuum.

The upper right-hand quadrant, with high contribution by both adult and child, represents the directions of open approaches. In the lower right quadrant, the teacher's involvement in what she is doing may be clear and articulate, but there is little room for contribution from the children. Teachers of this sort give a great deal of thought to their instruction and will throw out the usual procedures when it seems warranted, but they tend to dominate the center stage. The traditional British teacher with a strong professional posture may be an example. The upper left quadrant signifies classrooms with extensive pupil contribtuion, but where the adults provide passive support (as in some conventional nursery schools) or else abdicate responsibility almost entirely. Finally, in the lower left quadrant might be located extreme examples of institutionalization. Here, the children carry out the lessons assigned by the teacher who in turn is carrying out a program that was devised by someone else. Routine teaching and low personal involvement may characterize such settings.

Assessing Learning and Development

Questions of what to measure and how to measure it are difficult to answer when the evaluator (parent, teacher, researcher) is faced with a program in which children may pursue many different directions in learning (Minuchin, et al., 1969).

Analysis of the priorities of educational programs with broad objectives suggests four major aspects of the child's development that could be examined. Within each of these areas certain directions for research and instrument development are recommended:

Resourcefulness and Proficiency.—The assessment of achievement needs to be broadened in directions which would assess the child's own contributions to learning and the extent to which his resources have been brought into play. A construct of "proficiency" seems more appropriate here than the customary definition of achievement. To be appropriate to priorities of open approaches, assessment procedures in areas of learning (such as mathematics or language usage for example) should aim at assessing proficiency and versatility in performance. What do the learnings in question mean to the child? Does he apply them in various ways? Are they truly an integral part of his repertoire? Parker and Rubin (1966) point out that in classrooms where the stress is on process of learning " * * * the assimilation of knowledge is not derogated, but greater importance is attached to the methods of its acquisition and to its subsequent utilization. Therefore, a discrimination must be made between knowing something and knowing what it is good for * * * " (p. 2). Existing tests may measure whether the child knows something, but they are not as useful in assessing whether children know what it is good for. Tests of proficiency could build on existing instruments but should be specifically extended to include measurement of judgment and performance.

Self-perception.—Of principal interest here is the assessment of the child's feeling about himself in relationship to school and school-related experiences. Are children in open settings more likely to develop a perception of themselves as active organizers of their own

learning and contributing participants in the classroom? Instruments developed in this area could be used to obtain information about whether the child views school as a place to learn or a place to be taught and whether he has confidence in his own capabilities.

Personal and Cognitive Styles.—Focus on this aspect of behavior proceeds from the assumption that the more open classroom permits and encourages considerable exploration with different styles of functioning. Although research demonstrates that personal and cognitive styles are rather stable characteristics, it is suggested that children in open settings evidence greater flexibility in such traits than might ordinarily be expected. Thus, there is reason to expect less evidence of role caricature (the "overly-neat," the "class clown," the "hopelessly impulsive" child) in an open classroom than in a more traditional one. Modifications of existing research instruments as well as new measures would need to be used in this area.

Self-Others Frame of Reference.—Peer interaction is a marked characteristic of open settings, and children are expected to learn a great deal from each other. Observation of peer interaction and individual functioning in the open classroom leads to a general formulation regarding the balance between self and others as a frame of reference for behavior.

Two sets of questions are suggested for measurement purposes. The first involves communication situations: Are children learning to take active and adaptive roles in instructing each other, whether this role is one of the communicator who adapts to the needs of a listener or the role of the listener who actively seeks out information when something is unclear? The second set of questions deals with reliance on self in matters of judgment and opinion: To what extent does the child express opinion in the context of peer values which may oppose that opinion? Does greater peer interaction foster greater peer conformity, or does the open setting provide a better opportunity for children to learn to balance their own interests with those of their classmates?

Assessment of School Programs

If evaluation of student achievement in a school system is undertaken, it should include appraisal of school practices. As illustration, numerous examples can be given of school systems which boast of reading scores "above the norm," but in which there is a limited variety of books in the classroom and the library is more concerned with cataloguing than circulation. In such cases (which are not rare) the skill is valued but not its practice, and any evaluation which does not make this apparent is inadequate.

To continue with reading as an example from the perspective of open education at least four types of questions should be raised in evaluating student achievement. (1) *Motivation:* How do the pupils feel about reading? Do books and other printed material provoke feelings of inadequacy or do they stimulate interest? Preference measures should be used along with indices of whether the children are actually reading beyond the minimum requirements of assigned books. (2) *Opportunities for reading:* Are children provided with appropriate material and the time for reading? Is a variety of books available or does the supply consist of 30 copies of the same reader? Is there an area conducive to reading? (3) *Ability:* Measures of skill, comprehen-

sion, and interpretation could be included under this heading. (4) *Literacy:* Is the child literate in that he has a sense (or beginning sense) of authorship? An understanding that books may be written because someone had something to say? Does he read for various purposes such as the gathering of information, exercising imagination, fantasy, and the development of aesthetic appreciation?

In summary, if assessment of student achievement within an educational system is to be undertaken, it is as important to appraise the environment provided by that system as it is to test the children. Comprehensive assessment along the lines sketched above would be compatible with a comprehensive view of education.

Research on Learning and Educational Change

While examination of the open approaches suggests many possible directions for research, there are two lines of investigation which seem of special importance for what they can contribute to understanding and implementation of new programs.

Teacher's role.—Questions concerning teacher preparation and in-service training are clearly of prime importance for further study. What sort of assistance, in both its practical and theoretical forms, do teachers need in order to bring about more open approaches to instruction? To what extent can a school build upon its resources of staff and community and what is needed in the way of advisory assistance? Several groups in this country are presently engaged in trying to establish new ways of facilitating the development of school staffs. From systematic study of such attempts much could be learned that would lead to changes in our present teacher education methods—methods that are widely admitted to be archaic and inefficient.

Classroom Studies.—Intensive study of a limited sample of children in several good open schools appears to be an urgently needed research endeavor. Are these children learning in ways which corroborate existing assumptions about learning? Methodology in such studies might primarily be observational but should include periodic testing, interviews, and analyses of children's products. The need for intensive study is probably greatest from the first grade level on, where the differences between open approaches and traditional practices are much more evident than in kindergarten or preschool. One focus for such research might be an examination of the validity of the open approach to reading instruction which emphasizes purpose and meaning. This view of learning to read has not frequently been studied in educational research because of a dearth of appropriate settings in which to study it. With the exception of some published work on early readers who have learned in the home, reading research has generally investigated how children cope with prescribed methods of instruction rather than with how they acquire reading capabilities when the options of whether to read, why read, and what to read are much greater.

In general, studies of learning in the open settings not only would provide invaluable information for the practice of teaching but could also constitute a rich new source of research information on the nature of learning.

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PLANNING FOR NEW STUDENTS TO HIGHER EDUCATION IN THE 70'S

By K. PATRICIA CROSS

There will be a New Student in colleges and universities in the 70's, one who requires new approaches to education. Traditional higher education was designed in a different era for a different kind of student, and the formulations for education that served academically-oriented youth a half a century ago are no longer adequate.

*P*lanning for New Students requires an analysis of where we are now and where we would like to be by the end of the decade. The question of where we are now must be answered by research. The question of where we would like to go must be answered by society. This paper will attempt to analyze the answers to these questions.

WHO SHOULD GO TO COLLEGE? CHANGING PHILOSOPHIES

In the history of higher education in this country there have been three major philosophies about who should go to college. At the turn of the century, the majority of college students came from the homes of wealthy aristocracy. Students who attended colleges had money and family social status. Some also had academic interests and abilities; others did not. Basic to the aristocratic philosophy of college admissions, was the premise that the young people who should go to college were those who could afford it and who needed it to carry out their station in life. The poor, ethnic minorities, and women, it was assumed, would not follow life patterns that really made use of a college education. The colleges that were developed to serve the aristocratic philosophy were private high-tuition colleges. Whether a boy would go to college was predictable from birth. It was a closed system, and some were "in" and others were "out."

Actually, colleges of the aristocracy probably did not give much thought to erecting barriers that would keep people out of college. It simply did not occur to anyone that a young man should attend college if he did not have the money to do so. The thesis is easier to understand when viewed through the meritocratic perspective of our times.

To many, if not most people today, it is unthinkable that a student should attend college if he does not have the ability to benefit from the instruction offered. Only in recent years have we started to question whether the "instruction offered" might change so that it would "benefit" a new segment of the population who wished to attend college. In an earlier day, those who challenged the assumptions of the aristocracy asked the same question, why couldn't *colleges* change so that a broader segment of the population could attend? And, of course, in the long run colleges did change. But it was not the old colleges that had been developed to meet the needs of the aristocracy

that changed first. The challenge came, not by breaking down the gates to the aristocratic colleges, but by opening new gates through which a new generation of college students poured so rapidly that the high-tuition colleges no longer determined who would be college educated.

The revolt against aristocratic philosophies of college admissions was led by those who maintained that a college education was an earned right, not a birthright. Advocates of the new meritocracy that was ushered in by the land grant universities felt that criteria for college admission should be based upon scholastic ability and the willingness to study hard; i.e., upon academic "merit." Much as the aristocratic colleges had assumed that what they had to offer was static and designed for an elite portion of the population, so the colleges of the meritocracy assumed that there was a certain fairly small portion of the population that had the ability to benefit from what they offered. Considerable attention was given in the late 1940's and early 1950's to the determination of the size of this group.

The President's Advisory Commission on Higher Education of 1947 estimated that 49 percent of the population could profit from at least two years of post high school education and that at least 32 percent had the capacity for a normal 4-year college course. After considering this figure in conjunction with the observation that, ". . . most experts estimate that about 25 percent of the population can do college work profitably." Byron Hollinshead's report for the Commission on Financing Higher Education concluded that, ". . . perhaps 35 percent of youth might be expected to profit substantially from formal full-time post high school education of the kind given at present by such institutions" (Hollinshead, 1952, p. 138).

The rise of the meritocracy was regarded by almost everyone as a move that, in the best traditions of the country, led to the democratization of higher education. There is no little irony in the fact that while the advocates of the meritocracy were zealously breaking down the barriers imposed by the aristocracy they were quite consistently erecting their own barriers. And academic aptitude tests were the instruments that served both to destroy the old aristocracy and to erect the new barriers of the meritocracy. The "talent searches" of the 1950's were active campaigns to bring into the colleges those who did not meet aristocratic criteria but who were the epitome of meritocratic ideals. The very good student who was the son of the immigrant cobbler was the hero of the meritocracy—no money, no family social status, but lots of academic talent and a willingness to work hard.

Now once again we find ourselves in a period of philosophical transition regarding the question of who should go to college. Once again, there is pressure to democratize higher education by bringing it within the reach of a broader segment of the population. Once again there are demands for new answers to the old question of what proportion of the population the colleges should serve. The egalitarian challenge to the meritocracy looks strikingly familiar. The nature of the questions raised as well as the patterns of instituting change are not unlike those of a century ago. A new sector of the public is being represented by new students in colleges and universities. This group of New Students to higher education are repeating history by entering the system, not so much by breaking down the barriers erected by the

meritocracy, although there is some of that, but by flocking to a new kind of a college dedicated to serving a different clientele.

It appears that in 1971, the prevailing attitude in the country is still largely meritocratic, but there are signs everywhere of a straining at the barriers. The mingling of meritocratic and egalitarian philosophies is the occasion of considerable controversy among educators as well as in the popular press. The sign of the times is illustrated by a headline reading: "Open Admissions: American Dream or Disaster?" (TIME, October 19, 1970). At the same time that the formerly selective, tuition-free City University of New York was instituting egalitarianism by throwing open its doors to all 1970 New York City high school graduates, regardless of academic "qualifications," the 1970 President's Task Force on Higher Education was embracing meritocracy and attempting to clear away the last vestiges of the aristocratic era by recommending financial aid to "students of all races who have the desire and *ability to profit* from post high school education. . . ." (emphasis added). John Gardner has asked, can we be equal and excellent too? Can egalitarianism and meritocracy coexist? What happens to the value of the college degree when everyone has one? Is there some fixed concept that represents "college" that will permit us to say who should attend? Should higher education serve those who can "profit" from traditional offerings or is there an obligation to change the offerings to meet the needs of those who wish to attend college?

Almost everyone wishes to attend college today—a simple fact of life that means most voters want college education for their children. On the eve of the egalitarian phase of college admissions, we find ourselves concerned about how to get young people into college rather than about how to keep them out.

As a matter of fact, in the decade just past, we have given considerably more attention to the procedures of getting New Students into college than we have to the educational questions of what to do with them once there. When colleges maintain the right to select who shall study with them, an educational "match" can be made by choosing students who fit the college. When colleges forego the right to select, the match has to be made by designing educational programs to fit the students. To date, we have concentrated on making New Students over into the image of traditional students so that they may be served by traditional education. Our concern has been the creation of access models to education.[1] We have devised all kinds of ways to make New Students eligible to participate in *traditional* higher education. Remedial courses are designed to remove academic "deficiencies"; counseling removes motivational "deficiencies"; financial aid removes financial "deficiencies."

If the answer to the question, who should go to college, is to be an egalitarian response of "everyone," then the task ahead will involve the recognition that educational systems will have to be designed to fit the learning needs of New Students. Who are the New Students? Under an egalitarian philosophy of 14 years of schooling for everyone who wants it, New Students will be high school graduates who are not now continuing their education. Research provides some information

[1] For a discussion of some alternatives, see Cross, 1971.

about who is going to college now, and this enables us to look at the reservoir of New Students—those who will be entering some form of postsecondary education in the 1970's.

WHO IS GOING TO COLLEGE? SOME BARRIERS TO ATTENDANCE

Who are the young people who are entering college today? And as the corollary, who are the young people who are not entering college? Most laymen recognize that bright high school graduates are more likely to continue their education than those who have had to struggle for grades throughout high school, that doctors' sons are more likely than laborers' sons to attend college, that whites are more likely than blacks, and men are more likely than women to seek further education. These elements of the folk wisdom about who goes to college can be cast into more precise and accurate information through research.

Two dimensions that researchers have been able to measure seem to hold primary roles in explaining who goes to college, where they go, and even how long they stay. Socioeconomic status (SES), which includes measures of family occupation and parental education, and academic ability are the two most powerful measures we have of who goes where to college.

Some of the most important data extant on the interrelationships between SES and ability in college attendance rates have been presented by Lyle Schoenfeldt (1968) for Project TALENT high school graduates of 1961, and by Dr. Thomas Hilton who analyzed ETS' Growth Study data for 1967 high school graduates using the same scheme of tabulation.

TABLE 1.—*Probability of high school graduates in 1961 and 1967 entering some form of postsecondary education*

	Socioeconomic quarter							
	1—Low		2		3		4—High	
	1961	1967	1961	1967	1961	1967	1961	1967
Male:								
1—Low	21	48	28	55	30	40	51	65
2	37	57	47	58	51	69	61	79
3	47	74	52	77	66	79	82	88
4—High	69	82	83	89	87	93	93	94
Female:								
1—Low	14	39	25	41	26	55	39	60
2	26	40	27	44	41	64	57	76
3	38	52	51	58	54	77	76	86
4—High	58	69	66	77	84	88	91	95

Sources: 1961 graduates, with 1962 followup, Schoenfeldt, 1968. 1967 graduates, with 1968 followup, ETS Growth Study data analysis by Hilton.

Table 1 shows the two sets of data side by side. The two sets of data were not designed to be comparable, but we can be rather certain of some things. For example, the probability is extremely high that the son of a surgeon who has been an A student in high school will continue his education. For young people ranking in the top quartile on *both* SES and ability there is little difference between the two sets of data. Almost all of this group enter college, there has been little change

over the past decade; i.e., it has reached the saturation point. The 6 or 7 percent of this highly privileged group who don't attend college may be prevented from doing so by illness or other unusual emergencies. In 1970 the fact is that very few additional college students are to be expected from among high school graduates high in both academic aptitude and socioeconomic status.

At the other extreme are the doubly disadvantaged, those scoring in the lowest quartile on both SES and ability. The lowest probability for college attendance occurs in the cells in the upper left hand corner of the tables. For example, in the 1961 TALENT sample, 21 out of 100 lowest quarter SES males who also scored in the bottom fourth of the class on a test of academic ability entered some form of postsecondary training following high school graduation; for women it was only 14 percent.

At the beginning of the decade of the 60's we could predict with fairly reasonable accuracy the probability of continued education for young people in the extreme cells of Table 1. For men, for example, we would have been correct 93 times out of 100 in predicting that a high-ability, high SES student would enter postsecondary education; we would have been correct 79 times out of 100 in predicting that a low-ability, low SES student would terminate his formal education with a high school diploma.

The effectiveness of the meritocracy of the 1960's is clearly evident in the 1967 ETS Growth Study data. We can predict that an extremely high percentage of boys who make high test scores will embark upon postsecondary training—almost all of them in 2- or 4-year colleges—in the 1970's; 82 percent of the males in the top ability quarter of the ETS sample continued their formal education after high school graduation in 1967 even if they ranked in the *lowest* SES quartile. The handicap of low socioeconomic status was not as serious for boys in 1967 as the handicap of low academic ability. If a boy met meritocratic standards of above-average school achievement—as measured by traditional academic aptitude tests—he was very likely to continue his education. Over 80 percent of the boys who ranked in the upper half of the class academically were going on to college.

Women have not yet emerged from the aristocratic era of college admissions. Their probability of college attendance is influenced as much by socioeconomic factors as it is by the achievement factors of the meritocracy. The greatest discrepancies between the college-attendance rates of men and women exist among high ability students who are below average in socioeconomic measures. A bright but poor male has a better chance of continuing his education than has his equally able sister. Much of the difference can be attributed to parental attitudes. Census Bureau interviewers found that the higher the educational level of the parents, the less they were likely to distinguish between the educational needs of sons and daughters. For example, 73 percent of the mothers with a grade school education wanted college for their sons, but only 60 percent expressed the same desire for their daughters. Among mothers who had attended college, there was virtually no difference in the education desired for males and females—98 percent wanted sons to go to college and 97 percent wanted college for their daughters (Froomkin, 1970). The large increases in college attendance for women are now coming from the ranks of above-

average students from all socioeconomic levels, as women continue toward the peak of the meritocratic era in college attendance. For men, the meritocratic phase has passed its peak and in the decade of the 70's, the major increases in college attendance will come from lower-ability men.

As we move into the egalitarian phase of college admissions, the remnants of the earlier aristocratic and meritocratic phases can be observed. Both SES and academic aptitude have powerful influences on who goes to college. The effect is especially potent when they occur in combination. Young people, men and women, in the upper half in both ability and SES have a high probability of continuing their formal education—at least three-fourths are doing so. Young people in the lower half on *both* ability and SES are not as likely to continue their education, but for boys, over half are embarking upon some form of postsecondary training; for lower-half women about four out of ten high school graduates are pursuing further education.

The decade from 1965–1975 is likely to be highly significant in the annals of education because it provides the perspective from which we can identify the aristocracy as outgoing, the meritocracy as prevailing, and egalitarianism as the mood of the future.

National statements of policy formulated in the 1960's support the prevailing meritocratic criteria for determining who shall have the opportunity for postsecondary education by phrases such as ". . . identify *qualified* youths of financial or cultural need with an *exceptional potential* for postsecondary educational training and encourage them to complete secondary school and undertake postsecondary educational training" (Public Law 90–575, October 16, 1968, emphases added). But federal programs have also launched the beginning of an egalitarian era with programs for the disadvantaged which "are designed to generate skills and motivation necessary for success in education beyond high school" through the provision of special or remedial services for students "of deprived educational, cultural, or economic background or physical handicaps, [who] are in need of such services to assist them to initiate, continue, or resume their postsecondary education" (Public Law 90–575).

The emphasis of the 1960's was on *access*. The goal was to move young people toward traditional postsecondary education through supplying money, incentive, and remediation of past educational deficiencies so that New Students would have the same educational opportunities as traditional students. Partly because of the success of this effort in the 1960's, the task of the 1970's will be *accommodation* of education to the needs of students who gained admission through access programs. The emphasis will change from moving students toward higher education to moving education toward students. The 1970's have brought the realization that success at academic tasks in the past is not an infallible predictor of success in the future, especially when past opportunities for learning have not been equal for groups of differing locales, ethnic backgrounds, and socioeconomic status.

The press is strong for an egalitarian philosophy of access to postsecondary education. Egalitarians maintain that anyone who has the

desire to pursue further education should be helped to do so, regardless of economic resources and regardless of past academic achievement. If the meritocracy is ebbing and egalitarianism is on the rise, who will go to college?

The description is not quite accurate, but it is generally conceded that we have, in this country, a system of universal secondary education wherein young people who are physically and mentally able to attend high school do so. In reality only about 80 percent of the young people graduate from high school. If we assumed that universal higher education existed when it became as common as high school graduation is today—i.e., when 80 percent of the high school graduates continued their education—then we might construct a hypothetical egalitarian form of Table 1, wherein every SES-ability cell had an 80 percent postsecondary education attendance probability. Eighty percent of those in the top quarter on both SES and ability would continue their education, and 80 percent of those in the bottom quarter on both indices would also continue in some form of post-secondary education. Table 2 shows the reservoir of potential New Students to higher education. It is obtained by subtracting the percentages in each cell of Table 1 (the reality) from 80 (practical egalitarianism).

TABLE 2.—*The hypothetical reservoir of potential students for the attainment of egalitarian postsecondary education*

Ability	Socioeconomic status			
	1—Low	2	3	4—High
Male:				
1—Low	32	25	40	15
2	23	22	11	1
3	6	3	1	----
4—High	----	----	----	----
Female:				
1—Low	41	33	25	20
2	40	36	16	4
3	18	12	3	----
4—High	11	3	----	----

Source: 80 percent minus the percentage in each cell of the 1967 ETS growth study data presented in table 1.

Quite clearly, most of the New Students would come from rows 1 and 2—the lower half of the class academically. There would be almost no additional males from the upper half of the class, but there would be a fairly large number of women who stand in the top half of the class academically—almost all of them from the lower half of the socioeconomic scale.

Who will go to college? New Students to higher education will be students whose performance at academic tasks in the past has been below average. Low academic ability, as that ability is traditionally nurtured and measured in the schools will be their distinguishing characteristics. We need to turn our attention to the complicated problems of designing educational programs that will educate those who have been relatively untouched by instructional programs of the past. Institutions of higher education are not now prepared to teach New

Students. Nothing in our experience of designing educational programs has prepared us to think about whether the present meritocratic goals—i.e., high academic achievement—are compatible with egalitarian access. Do we plan to admit everyone, but graduate only those who meet meritocratic standards? Perhaps the place to start conceptualizing the enormous task before us is with achieving a better understanding of the characteristics of New Students.

A research description of the abilities, attitudes and interests of New Students, with emphasis upon suggestions for the design of appropriate educational programs for New Students is underway with the support of Educational Testing Service, the College Entrance Examination Board and the Center for Research and Development in Higher Education, University of California, Berkeley. A very brief capsule profile of some characteristics of New Students is presented here. For purposes of this description as well as those of the comprehensive study, New Students are defined as those scoring in the lowest third of samples of high school seniors on traditional tests of academic aptitude.

Most New Students are Caucasians whose fathers work at blue-collar jobs. A substantial number, however, are members of minority ethnic groups. The great majority of fathers have never attended college and the expectation of college is new to the family. Those who constitute the New Student pool of high school graduates have not been especially successful at their studies in high school. Whereas traditional college students (upper third) have made A's and B's in high school, New Students tended to make mostly C's. Traditional students are attracted primarily to 4-year colleges and universities, whereas New Students plan to enter public community colleges or vocational schools.

Fundamentally these New Students to higher education are swept into college by the rising educational aspirations of the citizenry. For the majority, the motivation for college does not arise from the anticipation of the joy of learning the things they will be learning in college, but from the recognition that education is the way to a better job and a better life than that of their parents.

Most educators and legislators have become sensitized to the failure of schools in minority ethnic neighborhoods to provide adequate academic foundations upon which young people can build college educations. But in a recent study sponsored by the Carnegie Corporation, Peter Binzen (Carnegie Quarterly, 1970) found that Kensington, a blue-collar community that is 99.7 percent white, has some of the same problems.

> Kensington is a community in crisis. . . . In many ways it looks, thinks, and acts like so many of the Negro ghettos festering in American cities. Its educational, political, social, and economic problems are almost as great as those found in the black slums. It, too, has failed to solve these problems, and failure has made it sullen, surly, and suspicious [p. 2]. . . .
>
> People forget that, in the metropolitan areas, twice as many white as nonwhite families live in "official" poverty, and of course many White towners don't quite qualify for that governmental distinction. They are poor but not poor enough to get help. Usually

earning from $5,000 to $10,000 a year, the Whitetown husband and father works hard as a truck-driver or turret lathe operator or policeman or longshoreman or white-collar clerk—perhaps at more than one of these jobs—to buy and hold on to his fourteen-foot-wide house and new color television set. [p. 1]. . . .

Some of the immediate implications for federal programs that result from this influx of New Students are apparent from a knowledge of SES and ability characteristics alone. Among these are the following:

1. The majority of young men now entering public community colleges will require some form of "remedial" help before they can meet the traditional standards of college. Seventy-two percent of the men entering public community college in the fall of 1970 made below-average grades in high school (ACE, 1970).

2. Female New Students are coming from the lower socioeconomic classes, but generally speaking women attending community colleges made average grades in high school. Their greater need is financial assistance. Women entering public community colleges are more worried than men about financing their education (CGP, 1970). Because part-time jobs and loans are more difficult for college women than for men, these young women will be placing increasingly heavy demands on the financial resources of colleges.

3. It is the opinion of this author that highest financial priority should now go toward developing effective educational programs for New Students. The access programs of the last decade have been, by and large, very successful. If after placing postsecondary educational opportunity within reach of these young people, we offer nothing more than further frustration and further opportunity for failure in educational programs that are inappropriate for the students and the times of the 1970's, then equality of educational opportunity is a hollow victory.

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MASS HIGHER EDUCATION AND THE ECONOMIC BENEFITS OF A COLLEGE DEGREE

By RODNEY T. HARNETT

We are rapidly approaching compulsory higher education in America. Not in the legal sense, of course, but in the sense that various economic and social forces are funneling so many more secondary school graduates into some form of post secondary school education that for one *not* to attend college is becoming increasingly difficult. In 1960, about half of America's high school graduates went on to college; in 1970—just ten years later—this figure had jumped to 62 percent and within another decade will be at least 70 percent.[1]

There are numerous reasons for such an increase, but none is more compelling than the long-established relationship that has existed in this country between level of educational attainment and earning power. The mean income differential between those holding a college degree and those who have not gone to college is considerable. According to data gathered in the 1960 census, for example, an engineer of 45, holding a college degree, had an annual mean income of approximately $11,000, whereas engineers of the same age without a degree had an annual mean income of approximately $8,300. For salesmen and sales clerks, the differential was even greater, with college graduates earning an average of $11,000 as opposed to $7,500 for salesmen without a college degree.[2] Though these data are ten years old and the salary levels of both groups would be considerably higher today, the general nature of the salary differentials by educational attainment is probably essentially the same in 1971.

The sizable income differentials between those who hold a college degree and those who have not gone to college will come as a surprise to no one. Education has long been an accepted avenue to "the better life" in the United States, and while educators are anxious to point out that monetary values cannot be placed on education and that numerous non-monetary benefits are also important consequences, the fact remains that substantial and consistent financial benefits have been associated with educational attainment.

It is tempting to conclude on the basis of such data that going to college (or, more specifically, getting *through* college) is almost certain to result in a larger annual income for the individual. It is this very reasoning, in fact, that has prompted many young high school graduates, who otherwise might be disinclined to pursue more years of study, to attend college. Data from the American Council on Education's annual surveys of entering college freshmen (see Table 1)

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[1] *A Fact Book on Higher Education*, American Council on Education, 1970, p. 70.7.

[2] For details regarding income differentials by various fields over a period of years and estimated lifetime earnings by sex, race, selected occupations and years of school completed, see *Income Distribution in the United States*, Herman P. Miller, U.S. Department of Commerce, Bureau of the Census, 1968.

make it clear that many entering college freshmen *do* perceive the attainment of a college degree primarily in terms of an increase in financial potential. At all institutions of higher education combined, approximately 67 percent of the 1970 entering freshmen agreed that the chief benefit of a college education is that it increases one's earning power. Nearly 78 percent of the students entering a junior college in 1970 held this same view. On an actuarial basis, this opinion is supported by the evidence discussed earlier: college graduates, on the whole, do earn more. But at least two factors place severe restrictions on the generalizability of these data to individuals, and raise serious questions about the appropriateness or wisdom of the income differential argument as a primary reason to attend college.

TABLE 1.—*Percentage of entering college freshmen agreeing or strongly agreeing that the chief benefit of a college education is that it increases one's earning power*

	1967	1968	1969	1970
All institutions	56. 0	57. 8	53. 6	66. 7
All 2-year colleges	68. 9	69. 6	64. 9	77. 9
Public universities	53. 1	54. 4	48. 3	60. 0
Private universities	43. 8	42. 8	43. 1	52. 7
Public 4-year colleges	55. 3	58. 4	50. 5	67. 1

Source: *National Norms for Entering College Freshmen*, 1967, 1968, 1969, and 1970 issues, American Council on Education.

Educational Attainment Versus Other Factors

First of all, it would be a serious mistake to overlook the importance that other personal characteristics play in determining job success. As Levin and his colleagues suggest, "In all likelihood, attributing the gross improvement in an individual's potential lifetime opportunity to higher educational attainment probably understates the effects of the other traits of persons who receive more schooling." [3] Intelligence, motivation, ability to "get along with others,"—these traits and others are also important ingredients of occupational success, and are also related to academic attainment. A great deal of research has attempted to determine what percentage of the income differential between college graduates and those who have not attended college is due to higher educational attainment alone, and what percentage seems to be attributable to some of these many personal factors.

As Levin et al. point out, nearly all the studies on the subject do show evidence of a significant effect of educational attainment that cannot be accounted for by differences in these other personal characteristics. But just how much is due to schooling and how much to other factors is still not clear. One investigator, for example, estimted that 60 percent of the income differentials that appear when men of similar age are classified by years of education actually is the result of education and 40 percent the result of other factors.[4] Numerous subsequent in-

[3] Levin, Henry M., Guthrie, J. W., Kleindorfer, G. B., and Stout, R. T., "School Achievement and Post-School Success: A Review," *Review of Educational Research*, 41, 1 (February, 1971), p. 2.

[4] Denison, E., *The Sources of Economic Growth in the United States and the Alternatives Before Us*, New York: Committee for Economic Development, 1962.

vestigations, however, have raised questions about the accuracy of this estimate and have suggested that the effect of schooling alone is somewhat higher. Most experts now feel—including the researcher originally offering the 60 percent estimate—that the percentage of income differential directly due to schooling is somewhere between 67 and 82 percent.[5] One study agrees with the range of schooling effects suggested earlier, but points out that earnings increased consistently with increases in class rank and college quality (the latter determined subjectively).[6] Thus, while it is true that schooling alone is a potent factor in accounting for income differentials in later life, it is at the same time true that non-school factors continue to play a very important role.

The importance of both formal schooling and non-school personal characteristics as income producers is further clarified in Figure 1, in which it can be seen that there is considerable variation around the mean incomes of those holding a college degree and those who never went to college. More important, there is considerable overlap between these two distributions. Specifically, one-fourth of the college graduates made less than the average high school graduate of similar age who did not go to college, and one-fifth of the high school graduates who never went to college earned more than the average college graduate. Though it is only an estimate, it would appear from these data that probably one-third of the college graduates earned no more than they would have made had they not attended college at all. Such information is even more meaningful when considered in conjunction with the data regarding class rank and institutional quality referred to earlier. Those who rank toward the bottom of their college graduating class or have attended colleges of questionable quality will almost surely be overrepresented in the low end of the income distribution for college graduates represented in Figure 1. Data reported by Patricia Cross indicate that the increasing percentage of high school graduates attending college will come from the lowest aptitude quartile of high school graduates.[7] It is not unlikely that many of these students will never graduate from college in the first place. Of those who do, it is likely that a sizable proportion will rank in the lower half of their classes, graduate from institutions of mediocre quality, or both.

Financial Benefits and Increasing College Enrollments

A second major factor limiting the generalizability of the notion that going to college results in greater earning power is the simple fact that as more and more high school graduates attend college, the value of the college degree (in terms of earning power again) will almost certainly decline. As Witmer has pointed out, ". . . one can expect the (constant dollar) monetary value of college education to fall gradually relative to costs as the percentage of the population grad-

[5] For two recent reviews of the research literature dealing with this topic, see Levin, et al., *op. cit.*, and Witmer, D. R., "Economic Benefits of College Education," *Review of Educational Research*, 40, 4 (October, 1970).

[6] Weisbrod, B. A., and Karpoff, P., *Monetary Returns to College Education, Student Ability and College Quality*, Madison: University of Wisconsin, Department of Economics, 1967.

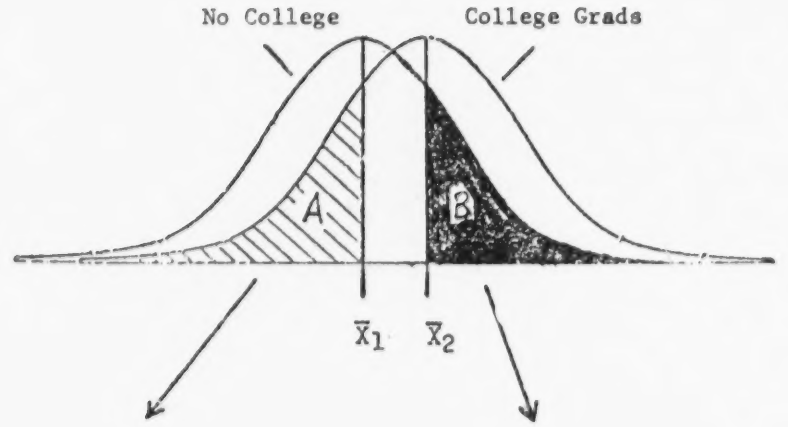
[7] Cross, K. Patricia, "Planning for New Students to Higher Education," a paper prepared for the Select Education Subcommittee of the Education and Labor Committee of the House of Representatives, 1971.

Figure 1

Overlapping Income Distributions for

High School Graduates and College Graduates During

Years of Peak Income



Even at period of peak earnings 25% of the college graduates made less than the mean of the high school graduates of similar age who did not to go college.

One out of every five high school graduates with no college had a higher income during his peak years than the average college graduate of the same age.

Note: These income distributions are presented only to illustrate the overlapping nature of the income of these two groups. The actual shape of the income curves for both groups is probably skewed, not normal as suggested here. The source of these data is the 1950 census, as reported in Glick, Paul C., and Miller, Herman P., "Educational Level and Potential Income," American Sociological Review, 21, 3, (June, 1956).

uating from college increases."[8] Assuming the present college enrollment trend continues, the college degree will become much like the high school diploma was fifteen or twenty years ago. It is at the same time true, of course, that in some ways the monetary value of the college degree will be *more* important than it is now. If, for example, 85 or 90 percent of our high school graduates go on to earn a college degree, the financial position of the college graduate will be relatively

[8] Witmer, *op. cit.*, p. 515.

worse than today in that his "credentials" will be no better than those of the great majority of his peers. He must still compete for jobs with a great many people with similar educational attainments.

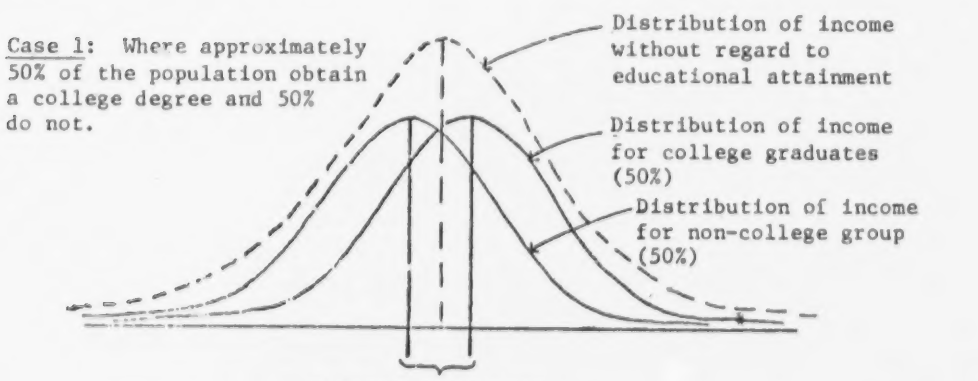
But he will clearly be much better off with respect to those who choose not to go on to college. Thus, the income differential between high school and college graduates can be expected to be even larger than it is now, since those without a college degree will have an increasingly difficult time finding jobs. This is illustrated in Figure 2, where two examples—one in which 50 percent of the population gradu-

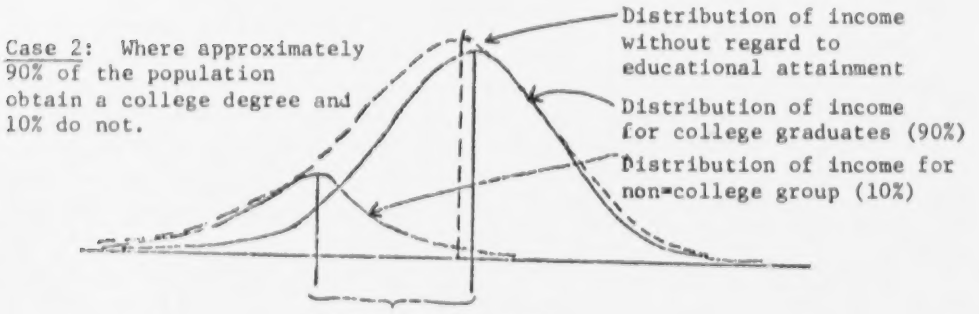
Figure 2

Comparison of Income Distributions for

College and no-College Groups When Different Percentages

of High School Graduates Attend College


Case 1: Where approximately 50% of the population obtain a college degree and 50% do not.
Distribution of income without regard to educational attainment
Distribution of income for college graduates (50%)
Distribution of income for non-college group (50%)
Difference in mean incomes for college vs. no-college


Case 2: Where approximately 90% of the population obtain a college degree and 10% do not.
Distribution of income without regard to educational attainment
Distribution of income for college graduates (90%)
Distribution of income for non-college group (10%)
Difference in mean incomes for college vs. no-college

Note: Case 2 (where 90% of the population obtain a college degree) has a bigger difference in mean incomes but finds more college graduates below the grand mean.

ate from college and one in which 90 percent graduate from college—are used to make this point. Going to college will not give one an advantage over very many people of the same age (as it has in the past), but it will at least prevent one from being pushed out of the running. Young people, it seems, will have everything to lose if they *don't* go to college, but very little to gain if they *do*. One might say that going to college is increasingly becoming a defensive rather than an offensive career decision.

The Involuntary Campus

It has of course always been true that many students went to college not because of intrinsic interest in pursuing study in one field or another, but because they recognized that a college education would increase the prospects of a stable financial future. But generally, this attendance has been voluntary in the sense that it really wasn't necessary for the student to attend college in order to compete for a fairly wide array of satisfactory jobs, nor was any particular stigma attached to the student who decided against a college education. As the percentage of high school graduates going on to college continues to rise, however, the voluntary nature of college attendance begins to vanish. As Martin Trow has pointed out, "The growth of enrollments and the movement toward universal higher education has made enrollment in college increasingly obligatory for many students, and their presence there increasingly 'involuntary.'" [9] Trow argues that as the soaring enrollments make colleges resemble secondary schools, some of the same problems which have beset secondary schools for years begin to appear at the college level, especially problems of student motivation, boredom, and maintenance of order.

The overall effect of the involuntary student syndrome is that more and more college classrooms are being filled by students "who really do not want to be in college, have not entered into willing contract with it, and do not accept the values or legitimacy of the institution." [10] This line of argument seems to suggest that the presence of the involuntary students on campus may be a major factor in the rash of student disturbances and other expressions of discontent on American college campuses during recent years. While not denying the legitimacy of many student complaints about poor teaching, disinterested faculty members, and the like, the "involuntary student" argument suggests that much of the blame for the campus disruptions and disillusionment comes from forcing youngsters into college who, at this time in their lives, have no interest in being there, and consequently find much that they dislike.[11] Kingman Brewster, president of Yale University, makes much the same point: ". . . a university, too many of whose members feel captive, is corrupted, distracted, and fouled for all its members. Higher learning cannot work if it is involuntary." [12]

[9] Trow, Martin. "Reflections on the Transition from Mass to Universal Higher Education," *Daedalus*, 99, 1 (Winter, 1970), p. 25.

[10] *Ibid.*, p. 26.

[11] It should be pointed out here that most research on student protestors and activists indicates that these students are highly able academically. Thus, if the increase in involuntary students is a force behind the campus disturbances—to the author's knowledge there is no good evidence on this point—it is clear that the involuntary students in these cation." *Daedalus*, 99, 1 (Winter, 1970), p. 25.

[12] Brewster, Kingman, "The Involuntary Campus and the Manipulated Society," *Educational Record*, Spring, 1970, p. 102.

Opposition to the involuntary student movement from a slightly different point of view—the negative consequences such trends have on the quality of American higher educational institutions—is made by Fritz Machlup of Princeton. Machlup points out that

> . . . higher education should be open to all who want it and can take it. But we cannot change the fact that perhaps 80 percent of the people find it not relevant to their interests and capacities. This is especially true of those who have been denied an adequate preparation at home and at school. *Broader*, continuing education also should be open to all who want it, and many more will be qualified for it. What I deplore is that virtually all colleges and universities are reducing academic requirements and the level of their offerings in the name of social justice and equality of opportunity, that is, in order to accommodate more of those who are not prepared to take higher education.[13]

It is worth noting that each of these opponents of the movement toward the "involuntary student" stresses the negative consequences of such a trend for the *institution*, in two cases in terms of the disruption that results when students become dissatisfied with its "irrelevant" programs of study, in the other case in terms of the watering down of institutional "quality" via a reduction in academic requirements. It would seem, however, that this concern for the welfare of the institution may be overdramatized and, compared to the needs of the individual students, not all that important. If the move toward mass education could be shown to have long-run benefits for the individuals involved, the dire consequences predicted for the institutions—if at all accurate—diminish in importance. The difficulty, however is in demonstrating the positive consequences for the students, and recognizing the very real possibility that the consequences for them may be negative as well. One might well ask, "What about the students?" How are they going to feel when, on top of resenting the pressures imposed on them to attend college, they discover that the rewards of their endurance—the financial gains they had been led to expect—may not be available after all?

Getting the Job Versus Doing the Job

Obviously, one of the major difficulties in all this is the level of educational attainment required by many employers. The fact that a college degree will not provide a financial advantage when 80 or 90 percent of the high school graduates attend college does little to detract from the harsh reality of the fact that the 10 percent who do not go on to college won't be able to get a job! Educational requirements for most jobs have risen dramatically over the past 10 years, and it is difficult to say whether the rise in requirements has resulted in the increase in college enrollments or the increase in enrollments has given employers the opportunity to raise educational requirements. In either case, the plain facts are that college degrees are now required for many jobs which formerly required only a high school diploma. This situation has prompted one skeptic to ask: "Are academic credentials important for *doing* the job—or just for getting it?" [14] This question

[13] Machlup, Fritz, "Longer Education: Thinner, Broader, or Higher," *Proceedings of the 1970 Educational Testing Service Invitational Conference on Testing Problems*, Educational Testing Service, Princeton, N.J. (in press).

[14] Berg, Ivar, "Rich Man's Qualifications for Poor Man's Jobs," *Transaction*, 6, 5 (March, 1969), p. 45.

indicates awareness of the fact that much of the upgrading in employers' educational requirements has been arbitrary. It would now appear that too many employers are demanding too much education for the job they offer. A comparison of 1960 census data with the U.S. Employment Service's descriptions of 4,000 jobs clearly shows that highly educated people are employed in jobs that require less education than these people actually have.[15] Beyond the unfortunate aspect of many people making certain sacrifices to obtain more schooling than they eventually need, this situation has (or can have) serious consequences for the employers as well. In certain cases educational attainment bears a negative relationship to job performance and worker morale. Numerous studies in industrial settings suggest that many better-educated employees are assigned to positions requiring low skills (or, at least, skills not related to educational experiences) with high turnover, low productivity, and worker dissatisfaction as frequent results.

The sometimes negative consequences of unrealistically high educational requirements are not limited to business and industry. American education itself may ironically be the best example. Many states and school districts have rigid regulations regarding educational requirements necessary for salary increases and promotions. Such policies, of course, are based on the premise that the greater the number of college credits accumulated, the greater the contribution one is able to make to the school system. Interestingly enough, several studies have indicated that as teachers' educational attainments rise, teacher mobility increases, with the teachers often moving out of education altogether into positions in other fields. To quote Berg again:

> Thus, for school systems to tie pay increases to extra credits seems to be self-defeating. Teachers who earn extra credits apparently feel that their educational achievements reach a point beyond which they are overtrained for their jobs, and they then want to get administrative jobs or leave education for better paying jobs in industry. The school districts are, in a sense, encouraging teachers not to teach.[16]

Will Still More Education Become the Trend?

If, as suggested in this paper, the increasing percentage of high school graduates attending college will have the net effect of weakening the influence of a college degree as an income-producing asset, doesn't that simply mean that still more education will become the avenue to the same goal? There is already abundant evidence that just as the percentage of high school graduates going on to college is rising, so is the percentage of college graduates going on to graduate school.[17] The overlapping income distributions referred to earlier (see Figure 1) will no doubt change, but the major nature of the change may simply be that both curves are pushed upward. This possible trend is shown in Figure 3. As indicated, as the percentage of the population attaining higher educational levels increases, those with less formal

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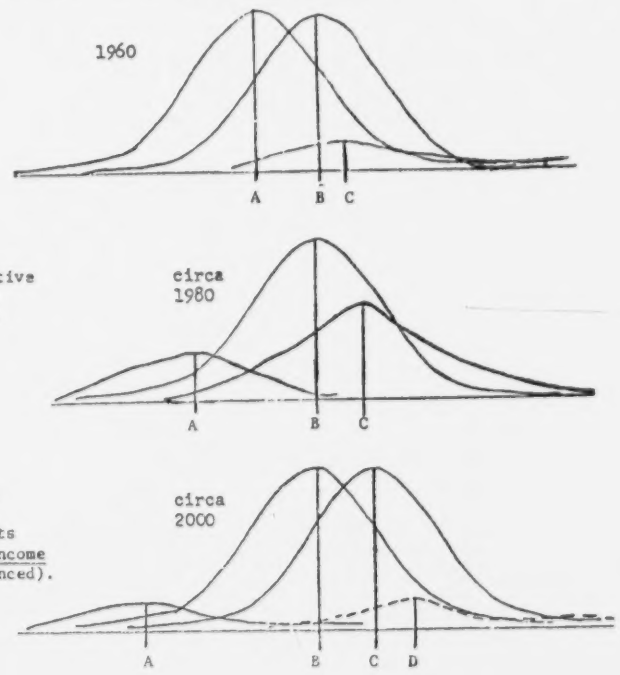
[15] *Ibid.*
[16] *Ibid.*, p. 48.
[17] *A Fact Book on Higher Education*, *op. cit.* In 1955, 8.8 percent of all students attending accredited colleges were enrolled in graduate school. Today that figure has climbed to well over 11 percent.

Figure 3

Changes in Income Distribution Curves

With Increasing Levels of Educational Attainment

A = Mean income of non-college population
B = Mean income of college graduates
C = Mean income of those with graduate education
D = (In bottom drawing only) Mean income of those with still more education



Note: As with Figure 1, these curves are not drawn to precise data and are intended to be illustrative of basic trends only. Note that the relative income differential between high school and college graduates increases with the increase in the percentage of the college-going population, and the differential between the college graduates and those with graduate training also increases as the percentage of college graduates going on to graduate school rises. An important part of this explanation is that employers' demands or job requirements keep pace with the supply (Miller, Income Distribution in the U. S., as referenced).

education fall further behind in the income distributions. But, in the long run, the net effect may simply be that the educational attainment norms are stepped up—i.e., elongated—with the economic value (to the individual) of educational attainment remaining essentially the same. In 1960, those without a college education made less money than college graduates, but there were many people without a college degree and therefore some competitive balance. In the year 2000, assuming present trends continue, it may well be that those having a college degree will be much like the high school graduates of 1960. They will be much better off than those not going to college (there will be far fewer in the latter group), but will now compete with a sizable population of people with graduate training.

Summary and Policy Questions

This paper has attempted to show: 1) that the percentage of high school graduates going on to college has been increasing steadily and will most likely continue to do so, 2) that a very high percentage of these students are attending college because of the perceived financial gains that will result when, in fact, for a great many of these students, such gains may not be achieved, and 3) that the net effect of tying job entry to educational attainment in many occupations may simply be to prolong the number of years of compulsory education, with little benefit (financially) to the very students who view this as the primary purpose of higher education.

Numerous research and policy considerations follow from these assertions. First, it would seem imperative to learn much more about the relationship between educational attainment and job performance in many occupations. For how many and what kinds of occupations do educational attainment requirements seem unnecessarily high? Does the utilization of high educational requirements, without evidence for their relevance for job success, serve as another form of discrimination against groups from disadvantaged (economically and educationally) backgrounds?

More needs to be known about the relationship between various college experience data (e.g., college "quality," rank in class, major field) and subsequent job opportunities, success, and satisfaction. Would those students who attend low-quality institutions or rank toward the bottom of their classes in the better ones have done just as well had they not even attended college, especially considering such factors as college costs (rising sharply) deferred income, and the like? Also, in view of the fact that a great many students regard college as a major avenue to improved financial status (see Table 1), it would seem to be of paramount importance to examine the factors that influence student expectations of the benefits of college, the extent to which these expectations change during the college years, and whether the students feel that their perceived needs (especially financial) have been satisfied.

What *kinds* of post-secondary training or schooling would seem to be most appropriate for what kinds of students? The "relevance" of higher education can only be considered in the context of the purposes one sees education as serving. Nevertheless, the typical liberal-arts program would seem appropriate for only a small portion of the students now in higher education. Institutions offering a greater variety of education and training programs are badly needed. At the recent Commission on Tests of the College Entrance Examination Board pointed out:

> American colleges have often been characterized as diverse: it seems clear that they must become more so, both at the institutional level and within their curriculums, if they are to serve nearly all American young people in an increasingly complex society. People are also diverse, more so than colleges have yet learned to take into account in their procedures, their programs, or their instruction.[18]

American higher education has been criticized in recent years for being an elite institution serving mainly as a credentialling agency for upper-middle class youth. These criticisms are just, and have been long overdue. In reshaping American higher education, however, great care must be taken to insure that egalatarian ideals are not being used to create an illusion. Opening wider the doors of admission to college will be a bitter travesty if new doors to satisfactory job opportunities are being erected and kept closed. Much more attention has to be given to the relationship between formal education and occupational opportunities, and to the whole notion of tying income benefits to quantity of formal schooling. Some means must be found for enabling a far greater percentage of American people to attain the comfortable standard of living so many of us take for granted. But is more education the answer?

[18] *Righting the Balance*, Vol. I of the College Entrance Examination Board's Report of the Commission on Tests, CEEB, New York, 1970, p. 39.

THE MORAL CONTENT OF AMERICAN PUBLIC EDUCATION

By ISRAEL SCHEFFLER

I. INTRODUCTION

The title of this essay is to be taken not as a declaration but as a question: What should be the purpose and content of our educational system insofar as it relates to moral concerns? This is a very large question, with many and diverse ramifications. Only its broadest aspects can here be treated, but a broad treatment, though it must ignore detail, may still be useful in orienting our thought and highlighting fundamental distinctions and priorities.

II. EDUCATION IN A DEMOCRACY

The title refers to education as American. But the latter designation is simply geographical; it provides little in the way of distinguishing criteria relevant to our problem. What is more pertinent is the commitment to the ideal of democracy as an organizing principle of society. This commitment has radical and far-reaching consequences, not only for basic political and legal institutions, but also for the educational conceptions that guide the development of our children. All institutions, indeed, operate through the instrumentality of persons; social arrangements are "mechanisms" only in a misleading metamorphical sense. Insofar as education is considered broadly, as embracing all those processes through which a society's persons are developed, it is thus of fundamental import for all the institutions of society, without exception. A society committed to the democratic ideal is one that makes peculiarly difficult and challenging demands of its members; it accordingly also makes stringent demands of those processes through which its members are educated.

What is the democratic ideal, then, as a principle of social organization? It aims so to structure the arrangements of society as to rest them ultimately upon the freely given consent of its members. Such an aim requires the institutionalization of reasoned procedures for the critical and public review of policy; it demands that judgments of policy be viewed not as the fixed privilege of any class or élite but as the common task of all, and it requires the supplanting of arbitrary and violent alteration of policy with institutionally channeled change ordered by reasoned persuasion and informed consent.

The democratic ideal is that of an open and dynamic society: open, in that there is no antecedent social blueprint which is itself to be taken as a dogma immune to critical evaluation in the public forum; dynamic, in that its fundamental institutions are not designed to arrest change but to order and channel it by exposing it to public scrutiny and resting it ultimately upon the choices of its members. The democratic ideal

is antithetical to the notion of a fixed class of rulers, with privileges resting upon social myths which it is forbidden to question. It envisions rather a society which sustains itself not by the indoctrination of myth, but by the reasoned choices of its citizens, who continue to favor it in the light of a critical scrutiny both of it and its alternatives. Choice of the democratic ideal rests upon the hope that this ideal will be sustained and strengthened by critical and responsible inquiry into the truth about social matters. The democratic faith consists not in a dogma, but in a reasonable trust that unfettered inquiry and free choice will themselves be chosen, and chosen again, by free and informed men.

The demands made upon education in accord with the democratic ideal are stringent indeed; yet these demands are not ancillary but essential to it. As Ralph Barton Perry has said,

> Education is not merely a boon conferred by democracy, but a condition of its survival and of its becoming that which it undertakes to be. Democracy is that form of social organization which most depends on personal character and moral autonomy. The members of a democratic society cannot be the wards of their betters; for there is no class of betters. . . . Democracy demands of every man what in other forms of social organization is demanded only of a segment of society. . . . Democratic education is therefore a peculiarly ambitious education. It does not educate men for prescribed places in life, shaping them to fit the requirements of a preexisting and rigid division of labor. Its idea is that the social system itself, which determines what places there are to fill, shall be created by the men who fill them. It is true that in order to live and to live effectively men must be adapted to their social environment, but only in order that they may in the long run adapt that environment to themselves. Men are not building materials to be fitted to a preestablished order, but are themselves the architects of order. They are not forced into Procrustean beds, but themselves design the beds in which they lie. Such figures of speech symbolize the underlying moral goal of democracy as a society in which the social whole justifies itself to its personal members.[1]

To see how radical such a vision is in human history, we have only to reflect how differently education has been conceived. In traditional authoritarian societies education has typically been thought to be a process of perpetuating the received lore, considered to embody the central doctrines upon which human arrangements were based. These doctrines were to be inculated through education; they were not to be questioned. Since, however, a division between the rulers and the ruled was fundamental in such societies, the education of governing elites was sharply differentiaited from the training and opinion-formation reserved for the masses. Plato's *Republic*, the chief work of educational philosophy in our ancient literature, outlines an education for the rulers in a hierarchical utopia in which the rest of the members are to be deliberately nourished on myths. And an authoritative contemporary Soviet textbook on *Pedagogy* declares that "Education in the

[1] Ralph Barton Perry, *Realms of Value*, Cambridge, Massachusetts: Harvard University Press, 1954, pp. 425ff. Excerpt reprinted in I. Scheffler, ed. *Philosophy and Education*, 2nd edition, Boston: Allyn and Bacon, Inc., 1966, pp. 32ff.

USSR is a weapon for strengthening the Soviet state and the building of a classless society. . . . the work of the school is carried on by specially trained people who are guided by the state." [2] The school was indeed defined by the party program of March 1919 as "an instrument of the class struggle. It was not only to teach the general principles of communism but 'to transmit the spiritual, organizational, and educative influence of the proletariat to the half- and nonproletarian strata of the working masses.'" [3] In non-democratic societies, education is two faced: it is a weapon or an instrument for shaping the minds of the ruled in accord with the favored and dogmatic myth of the rulers; it is, however, for the latter, an induction into the prerogatives and arts of rule, including the arts of manipulating the opinions of the masses.

To choose the democratic ideal for society is wholly to reject the conception of education as an *instrument* of rule: it is to surrender the idea of shaping or molding the mind of the pupil. The function of education in a democracy is rather to liberate the mind, strengthen its critical powers, inform it with knowledge and the capacity for independent inquiry, engage its human sympathies, and illuminate its moral and practical choices. This function is, further, not to be limited to any given subclass of members, but to be extended, insofar as possible, to all citizens, since all are called upon to take part in processes of debate, criticism, choice, and cooperative effort upon which the common social structure depends. "A democracy which educates for democracy is bound to regard all of its members as heirs who must so far as possible be qualified to enter into their birthright." [4]

III. IMPLICATIONS FOR SCHOOLING

Education, in its broad sense, is more comprehensive than schooling, since it encompasses all those processes through which a society's member are developed. Indeed, all institutions influence the development of persons working within, or affected by, them. Institutions are complex structures of actions and expectations, and to live within their scope is to order one's own actions and expectations in a manner that is modified, directly or subtly, by that fact. Democratic institutions, in particular, requiring as they do the engagement and active concern of all citizens, constitute profoundly educative resources. It is important to note this fact in connection with our theme, for it suggests that formal agencies of schooling do not, and cannot, carry the whole burden of education in a democratic society, in particular moral and character education. All institutions have an educational side, no matter what their primary functions may be. The question of moral education in a democracy must accordingly be raised not only within the scope of the classroom but also within the several realms of institutional conduct. Are political policies and arrangements genuinely open to rational scrutiny and public control? Do the courts and agencies of government operate fairly? What standards of service

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[2] B. P. Yesipov and N. K. Goncharov, *Pedagogy*, Third Edition, 1946; quoted in George S. Counts and Nucia P. Lodge, *"I Want To Be Like Stalin"*, New York: The John Day Company, 1947, pp. 14, 18.

[3] Frederic Lilge, "Lenin and the Politics of Education", *Slavic Review*, Vol. XXVII, No. 2, June 1968, p. 255.

[4] Ralph Barton Perry, Op. cit.

and integrity are prevalent in public offices? Does the level of political debate meet appropriate requirements of candor and logical argument? Do journalism and the mass media expose facts and alternatives, or appeal to fads and emotionalism? These and many other allied questions pertain to the status of moral education within a democratic society. To take them seriously is to recognize that moral education presents a challenge not only to the schools, but also to every other institution of society.

Yet the issue must certainly be raised specifically in connection with schools and schooling. What is the province of morality in the school, particularly the democratic school? Can morality conceivably be construed as a *subject*, consisting in a set of maxims of conduct, or an account of current mores, or a list of rules derived from some authoritative source? Is the function of moral education rather to ensure conformity to a certain code of behavior regulating the school? Is it, perhaps, to involve pupils in the activities of student organizations or in discussion of "the problems of democracy"? Or, since morality pertains to the whole of what transpires in school, is the very notion of specific moral schooling altogether misguided?

These questions are very difficult, not only as matters of implementation, but also in theory. For it can hardly be said that there is firm agreement among moralists and educators as to the content and scope of morality. Yet the tradition of moral philosophy reveals a sense of morality as a comprehensive institution over and beyond particular moral codes, which seems to me especially consonant with the democratic ideal, and can, at least in outline, be profitably explored in the context of schooling. What is this sense?

It may perhaps be initially perceived by attention to the language of moral judgment. To say that an action is "right", or that some course "ought" to be followed, is not simply to express one's taste or preference; it is also to make a claim. It is to convey that the judgment is backed by reasons, and it is further to invite discussions of such reasons. It is, finally, to suggest that these reasons will be found compelling when looked at impartially and objectively, that is to say, taking all relevant facts and interests into account and judging the matter as fairly as possible. To make a moral claim is, typically, to rule out the simple expression of feelings, the mere giving of commands, or the mere citation of authorities. It is to commit oneself, at least in principle, to the "moral point of view", that is, to the claim that one's recommended course has a point which can be clearly seen if one takes the trouble to survey the situation comprehensively, with impartial and sympathetic consideration of the interests at stake, and with respect for the persons involved in the issue. The details vary in different philosophical accounts, but the broad outlines are generally acknowledged by contemporary moral theorists.[5]

If morality can be thus described, as an institution, then it is clear that we err if we confuse our allegiance to any particular code with

[5] See, for example, Kurt Baier, *The Moral Point of View*, Ithaca, New York: The Cornell University Press, 1958; William K. Frankena, *Ethics*, Englewood Cliffs, N.J.: Prentice Hall, Inc., 1963; and R. S. Peters, *Ethics and Education*, Glenview, Illinois: Scott Foresman and Company, 1967.

Additional articles of interest may be found in sec. V "Moral Education" and sec. VI "Education, Religion, and Politics", in I. Scheffler, ed. *Philosophy and Education*, 2nd edition, Boston: Allyn and Bacon, Inc., 1966.

our commitment to this institution; we err in mistaking our prevalent code for the *moral point of view* itself. Of course, we typically hold our code to be justifiable from the moral point of view. However, if we are truly committed to the latter, we must allow the possibility that further consideration or new information or emergent human conditions may require revision in our code. The situation is perfectly analogous to the case of science education: we err if we confuse our allegiance to the current corpus of scientific doctrines with our commitment to scientific method. Of course we hold our current science to be justifiable by scientific method, but that very method itself commits us to holding contemporary doctrines fallible and revisable in the light of new arguments or new evidence that the future may bring to light. For scientific doctrines are not held simply as a matter of arbitrary preference; they are held for reasons. To affirm them is to invite all who are competent to survey these reasons and to judge the issues comprehensively and fairly on their merits.

Neither in the case of morality nor in that of science is it possible to convey the underlying *point of view* in the abstract. It would make no sense to say "Since our presently held science is likely to be revised for cause in the future, let us just teach scientific method and give up the teaching of content." The content is important in and of itself, and as a basis for further development in the future. Moreover, one who knew nothing about specific materials of science in the concrete could have no conception of the import of an abstract and second-order scientific method. Nevertheless, it certainly does not follow that the method is of no consequence. On the contrary, to teach current science without any sense of the reasons that underly it, and of the logical criteria by which it may itself be altered in the future, is to prevent its further intelligent development. Analogously, it makes no sense to say that we ought to teach the moral point of view in the abstract since our given practices are likely to call for change in the future. Given practices are indispensable, not only in organizing present energies, but in making future refinements and revisions possible. Moreover, one who had no concrete awareness of a given tradition of practice, who had no conception of what rule-governed conduct was, could hardly be expected to comprehend what the moral point of view might be, as a second-order vantage point on practice. Nevertheless, it does not follow that the latter vantage point is insignificant. Indeed, it is fundamental insofar as we hold our given practices to be reasonable, that is, justifiable in principle upon fair and comprehensive survey of the facts and interests involved.

There is, then, a strong analogy between the moral and the scientific points of view, and it is no accident that we speak of reasons in both cases. We can be reasonable in matters of practice as well as in matters of theory. We can make a fair assessment of the evidence bearing on a hypothesis of fact, as we can make a fair disposition of interests in conflict. In either case, we are called upon to overcome our initial tendencies to self-assertiveness and partiality by a more fundamental allegiance to standards of reasonable judgment comprehensible to all who are competent to investigate the issues. In forming such an allegiance, we commit ourselves to the theoretical possibility that we may need to revise our current beliefs and practices as a consequence of "listening to reason". We reject arbitrariness in principle, and

accept the responsibility of critical justification of our current doctrines and rules of conduct.

It is evident, moreover, that there is a close connection between the general concept of *reasonableness* underlying the moral and the scientific points of view, and the democratic ideal. For the latter demands the institutionalization of "appeals to reason" in the sphere of social conduct. In requiring that social policy be subject to open and public review, and institutionally revisable in the light of such review, the democratic ideal rejects the rule of dogma and of arbitrary authority as the ultimate arbiter of social conduct. In fundamental allegiance to channels of open debate, public review, rational persuasion and orderly change, a democratic society in effect holds its own current practices open to revision in the future. For it considers these practices to be not self-evident, or guaranteed by some fixed and higher authority, or decidable exclusively by some privileged elite, but subject to rational criticism, that is, purporting to sustain themselves in the process of free exchange of reasons in an attempt to reach a fair and comprehensive judgment.

Here, it seems to me, is the central connection between moral, scientific, and democratic education, and it is this central connection that provides, in my opinion, the basic clue for school practice. For what it suggests is that the fundamental trait to be encouraged is that of reasonableness. To cultivate this trait is to liberate the mind from dogmatic adherence to prevalent ideological fashions, as well as from the dictates of authority. For the rational mind is encouraged to go behind such fashions and dictates and to ask for their justifications, whether the issue be factual or practical. In training our students to reason we train them to be critical. We encourage them to ask questions, to look for evidence, to seek and scrutinize alternatives, to be critical of their own ideas as well as those of others. This educational course precludes taking schooling as an instrument for shaping their minds to a preconceived idea. For if they seek reasons, it is their evaluation of such reasons that will determine what ideas they eventually accept.

Such a direction in schooling is fraught with risk, for it means entrusting our current conceptions to the judgment of our pupils. In exposing these conceptions to their rational evaluation we are inviting them to see for themselves whether our conceptions are adequate, proper, fair. Such a risk is central to scientific education, where we deliberately subject our current theories to the test of continuous evaluation by future generations of our student-scientists. It is central also to our moral code, *insofar as* we ourselves take the moral point of view toward this code. And, finally, it is central to the democratic commitment which holds social policies to be continually open to free and public review. In sum, rationality liberates, but there is no liberty without risk.

Let no one, however, suppose that the liberating of minds is equivalent to freeing them from discipline. Laissez-faire is not the opposite of dogma. To be reasonable is a difficult achievement. The habit of reasonableness is not an airy abstract entity that can be skimmed off the concrete body of thought and practice. Consider again the case of science: scientific method can be learned only in and through its corpus of current materials. Reasonableness in science is an aspect or dimension of scientific tradition, and the body of the tradition is indispens-

able as a base for grasping this dimension. Science needs to be taught in such a way as to bring out this dimension as a consequence, but the consequence cannot be taken neat. Analogously for the art of moral choice: The moral point of view is attained, if at all, by acquiring a tradition of practice, embodied in rules and habits of conduct. Without a preliminary immersion in such a tradition, an appreciation of the import of its rules, obligations, rights, and demands, the concept of choice of actions and rules for oneself can hardly be achieved. Yet the prevalent tradition of practice can itself be taught in such a way as to encourage the ultimate attainment of a superordinate and comprehensive moral point of view.

The challenge of moral education is the challenge to develop critical thought in the sphere of practice and it is continuous with the challenge to develop critical thought in all aspects and phases of schooling. Moral schooling is not, therefore, a thing apart, something to be embodied in a list of maxims, something to be reckoned as simply another subject, or another activity, curricular or extra-curricular. It does, indeed, have to pervade the *whole* of the school experience.

Nor is it thereby implied that moral education ought to concern itself solely with the general structure of this experience, or with the effectiveness of the total "learning environment" in forming the child's habits. The critical questions concern the *quality* of the environment: What is the *nature* of the particular school experience, comprising content as well as structure? Does it liberate the child in the long run, as he grows to adulthood? Does it encourage respect for persons, and for the arguments and reasons offered in personal exchanges? Does it open itself to questioning and discussion? Does it provide the child with fundamental schooling in the traditions of reason, and the arts that are embodied therein? Does it, for example, encourage the development of linguistic and mathematical abilities, the capacity to read a page and follow an argument? Does it provide an exposure to the range of historical experience and the realms of personal and social life embodied in literature, the law, and the social sciences? Does it also provide an exposure to particular domains of scientific work in which the canons of logical reasoning and evidential deliberation may begin to be appreciated? Does it afford opportunity for individual initiative in reflective inquiry and practical projects? Does it provide a stable personal milieu in which the dignity of others and the variation of opinion may be appreciated, but in which a common and overriding love for truth and fairness may begin to be seen as binding oneself and one's fellows in a universal human community?

If the answer is negative, it matters not how effective the environment is in shaping concrete results in conduct. For the point of moral education in a democracy is antithetical to mere shaping. It is rather to liberate.

EMERGING DEFINITIONS OF EDUCATION

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Current definitions of "education" fall, roughly, into three categories. The first contains those approaches deriving from John Dewey's view that education (which "consists primarily in transmission through communication" [1]) occurs throughout the social environment, not simply in the schools. Lawrence A. Cremin,[2] Charles E. Silberman,[3] and others have emphasized the importance of incidental (or informal) learning outside the institution of the school; they have included the more or less deliberate transmission occurring through the mass media, on the streets, in the churches, and in the homes in their definitions of "education." Lately, in fact, there has been a tendency to ascribe an intentional character not only to educational television programs like *Sesame Street* but to television commercials, films, and even political presentations. The distinctions Dewey saw between the "special environment" created for learning within the school and occasions for learning in the culture at large are in many places being obscured, as people begin thinking in terms of *plural* and diverse opportunities for learning. The definitions in this category have begun to divide and subdivide in recent months: the medical, legal, and social work professions are seen to be involved in education; informal learning situations are conceived to be more "educative" than formal ones [4]; Silberman (following Cremin) adapts the concept of *paideia* to the American situation and asserts that the culture at large "educates," if only to the "wrong ends." [5] In spite of the range of approaches in this category, "transmission" remains a key term: some sort of socialization is implied; and the educational process is thought to be one far more encompassing than what transpires in schools.

The second category includes definitions which focus on initiation into the academic disciplines, mastery, discovery of the "structures" of knowledge or subject matter. For the philosopher R. S. Peters, for instance, it is appropriate enough to describe education as a socializing process "in the context of a theory of social cohesion"; but, if conceptual clarity is desired, 'education' ought to be defined "from the point of view of someone engaged in the enterprise." [6] So defined, "'education' involves essentially processes which intentionally transmit what is valuable in an intelligible and voluntary manner and which

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[1] John Dewey, *Democracy and Education*, New York: The Macmillan Company, 1916, p. 11.

[2] Lawrence A. Cremin, *The Genius of American Education*, Pittsburgh, Pa.: The University of Pittsburgh Press, 1965, Chapter III, *The Politics of Popular Education*.

[3] Charles E. Silberman, *Crisis in the Classroom*, New York: Random House, Inc., 1970, Part I.

[4] See Paul Goodman, *Compulsory Mis-Education* and *The Community of Scholars*, New York: Vintage Books, 1964, Chapter 10.

[5] Silberman, op. cit., p. 5.

[6] Richard S. Peters, *Education as Initiation*, London: University of London Studies in Education, Evans Bros. Ltd., 1963, p. 12.

create in the learner a desire to achieve it, this being seen to have its place along with other things in life." [7] The focus here is on the communication of worthwhile things in a worthwhile way, and on communicating formally, intentionally. If this is done successfully, individuals will be enabled to achieve certain desirable states of mind, the states of mind characterizing people who have been initiated into existing "public traditions enshrined in the language, concepts, beliefs, and rules of a society." [8]

Not all views of education as the achievement of mastery culminate in this type of conservatism; and, again, the definitions proliferate within the category. For Philip H. Phenix, 'education' refers to a pursuit of meanings, to be conducted by means of disciplined learning. "Education," he writes, "should be conceived as a guided recapitulation of the processes of inquiry which gave rise to the fruitful bodies of organized knowledge comprising the established disciplines." [9] Education clearly involves perpetuation of the culture for him; but more is demanded than mere "transmission." The disciplines actually disclose the real nature of things and, as well, "the paths by which persons may come to realize truth in their own being. . . ." [10] Others, however, define "education" as "the humanization, socialization, cumulation of experience, insofar as it contributes to the development of a unique human being." [11] Still others talk of it as a means of developing the kinds of skills required by national interest or some conception of "national goals"; and there are many who still define it very generally, as Jerome Bruner does, to signify "a means of training well-balanced citizens for a democracy." [12] "Mastery" and "the valuable" remain the common terms, however, along with certain emphasis upon "cognitive action," [13] achievement, and the ability to act consciously in accord with the norms governing the disciplines.

The third category contains definitions of 'education' as "self-instruction," [14] individualized or self-generated learning, as it "refers to the multiple modes of becoming, of confronting life situations, of engaging with others, of reflecting, forming, choosing, struggling to be. [15] Some who define 'education' in this fashion find it difficult to envision within existing schools. For Ivan Illich, for example, 'education' means self-teaching which is personally initiated for personal ends; and schooling, as he understands it, makes this impossible. "School teaches us," he writes, "that instruction produces learning. The existence of schools produces the demand for schooling. Once we have learned to need school, all our activities tend to take the shape of client relationships to other specialized institutions." [16] Paul Goodman, with his cur-

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[7] Peters, op. cit., p. 34.
[8] R. S. Peters, *Ethics and Education*. London: George Allen and Unwin, 1966, p. 48.
[9] Philip H. Phenix, *The Uses of the Disciplines as Curriculum Content*, *Educational Forum*, March 26, 1962, p. 278.
[10] Phenix, op. cit., p. 286.
[11] Stephen Ross, *The Meaning of Education*. The Hague: Martinus Nijhoff, 1966, p. 12
[12] Jerome S. Bruner, *The Process of Education*. Cambridge: Harvard University Press, 1960, p. 1.
[13] James E. McClellan, *Propositional Knowledge and Cognitive Action*, in Donald Vandenberg, Ed., *Theory of Knowledge and Problems of Education*. Urbana, Ill.: University of Illinois Press, 1969, p. 197.
[14] Ivan Illich, *Schooling: The Ritual of Progress*. *The New York Review*, December 3, 1970.
[15] Maxine Greene, *Existential Encounters for Teachers*. New York: Random House, 1967, p. 161.
[16] See Illich, op. cit.

rent emphasis on the learning which inevitably occurs on city streets, in museums, in community centers, agrees that the most significant, authentic education is the kind that occurs outside the compulsory school. George Dennison, on the other hand, and John Holt, while likely to present a similar definition of 'education', hold some hope for sensitively created learning environments—free schools, perhaps, informal schools like Dennison's First Street School.[17] In this category too, however, there are key words and key emphases: "reality of encounter," "self-instruction," "consciousness," "authenticity," "I-Thou," "freedom." Socialization is rarely, if ever, referred to; nor are the public traditions. There is, in fact, a certain negative stress in the most of the definitions here, an explicit rejection of "multilation," "manipulation," "conditioning," predetermined curriculum, directiveness (although "guidance" is allowed).[18]

It should be pointed out that, when criticisms are levied and reforms proposed, the term 'education' is used in various ways; and definitions from all three categories are often subsumed under one stipulated meaning. It is not uncommon, therefore, to find an educational writer or researcher taking it for granted that education proceeds throughout the social environment and then going on to recommend the kind of structured learning environment which can only exist in a school. Nor is it unusual for educators, while nodding in the direction of incidental learning, to put their main stress upon deliberately guided classroom performance, the exigencies of "knowing how,"[19] the necessity for moving logically and sequentially towards mastery of the disciplines. More and more frequently today, cognitive achievement is linked to the "humanization" or the "popularization" of knowledge, which is in turn linked to the concept of a "learning society,"[20] one presumed to be vital enough and aware enough to control its own instruments of power, to determine its own destiny. At the same time, albeit in other quarters, cognitive achievement may be linked to the development of personal autonomy, to the ability to choose authentically and appropriately, to increases in the individual's capacity to cope with a changing, often hostile world.

Conceptualizations of "education" also depend upon vantage point and perspective, as well as upon the universe of discourse inhabited by the speaker. It is clear that many representatives of ghetto communities take what has been called a "managerial"[21] approach to education. Relatively uninterested in self-definition and heightened consciousness, they are fundamentally concerned with a type of education which provides their children with the kinds of skills the market demands. The "illegitimacy"[22] ascribed to educational institutions serving the poor is explained by their inability to satisfy the needs of the constituency concerned.[23]

Doxey A. Wilkerson, for example, talks about the "non-education" responsible for reading retardation and the necessity for the kinds of

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[17] George Dennison, *The Lives of Children*. New York: Random House, 1969.
[18] See Goodman, op. cit.
[19] Cf. Gilbert Ryle, *The Concept of Mind*, New York: Barnes & Noble, Inc., 1949, Chapter II.
[20] Dewey, op. cit., pp. 416, 418.
[21] Cf. Thomas F. Green, Schools and Communities: A Look Forward, *Harvard Educational Review*, Spring 1969, pp. 221–52.
[22] Charles Hamilton, "Race and Education: A Search for Legitimacy," *Harvard Educational Review*, Fall 1968, pp. 669–84.
[23] Hamilton, op. cit.

compensatory education which will enable poor children to cope with the demands of an advanced industrial society.[24] He has, it would appear, skills in mind; and, in defining "education", he would more than likely put his emphasis on fundamental "knowing how," the nature of which is determined by the requirements of the "opportunity structure," by the world of work. Robert A. Dentler, also concerned with the disadvantaged, uses the term "upgrading" and talks of the need to develop "earning power and cognitive skills." [25] Kenneth Clark emphasizes the social pathology in the background of ghetto children and calls for the establishment of "mobility vehicles" [26] in a variety of parallel systems. For him, too, "education" is defined as compensation, upgrading, enabling young people to overcome the powerlessness accompanying poverty.

There are other spokesmen for minority groups who do not so readily accept the need to prepare poor children for absorption into the mainstream as it presently exists. When Preston Wilcox talks of education in the community-centered and parent-controlled schools he advocates,[27] he frequently evokes images of education as it once proceeded in the small face-to-face communities from which so many poor people have come. The process, he suggests, should be co-extensive with the local community. Not only should the skills of literacy be taught; not only should minority children be made acquainted with their own past and their own cultural identity; the school should serve "as a life orientation vehicle for new students and newcomers to the city." [28] The school, for Wilcox, gradually becomes co-extensive with the community. Education, while including "learning for use," the development of "a sense of functional curiosity," and the nurture of responsibility for developing "intellectual resources," includes policy-making for the community and self-expressiveness on the part of indigenous individuals. This particular approach is a direct response to frustrated efforts at integrating and upgrading existing ghetto schools: it is one of the few that defines "education" more or less explicity as a process of effecting social change.

"Education" for Black Power advocates and other militants means something different; since, for them, the ethnic identity must be communicated in such a fashion that it becomes "separate" in every respect. "Education" then comes to mean an initiation into an integral sub-culture, part traditional, part fabricated in response to the "new." [29] Education of children to awareness of a culture-in-the-making and, at once, to a new and proud awareness of themselves involves a type of indoctrination coupled with an emphasis on choosing and self-creation. There is less emphasis on skill-training than in the models proposed by Kenneth Clark: less orientation to a local community than in Preston Wilcox's model. Also, there is an explicit rejection of all efforts to regenerate such fictions as "melting-pot," along with a rejection of notions like "deprivation" and "com-

[24] Doxey A. Wilkerson, *Compensatory Education*, in Sheldon Marcus and Harry N. Rivlin, Ed.s, *Conflicts in Urban Education*, New York: Basic Books, 1971.
[25] Robert A. Dentler, *New Methods of Teaching the Socially Disadvantaged*, in Marcus and Rivlin, op. cit., p. 65.
[26] Kenneth Clark, *Alternative Public School Systems*, in Beatrice and Ronald Gross, Ed.S., *Radical School Reform*, New York: Simon and Schuster, 1969, p. 116.
[27] Preston Wilcox, *The Community-Centered School*, in Gross, op. cit., p. 125.
[28] Wilcox, op. cit., p. 128.
[29] See Ossie Davis, "The English Language is My Enemy," in *The American Teacher*, April 1967; "On Separatism," *Columbia Spectator*, March 7, 1969; "Course on Minority Group Culture?" *Social Science Review*, September 1968.

pensation." Clark and Wilcox too take issue with the prevalent belief that children fail because of *their* peculiar deficiencies rather than the school's; but educational separatists are far more likely to charge the larger society with racism, decadence, as well as with deficiencies, and to perceive the emerging Black as a source of fresh power and insight which the white man will do all he can to tamp down.[30]

It should be clear, even on the basis of this limited sampling, that 'education' (much like 'art') must be considered an open concept today. None of the traditional definitions (cultivating, rearing, transmitting, skill-training, socialization, acculturation) encompasses the diverse phenomena identified as 'education' today. Yet, in the Introduction to Roger E. Levien's draft of a Preliminary Plan for the proposed National Institute of Education,[31] most of the traditional definitions are implicit. The American "educational system," says the writer, should "*convey* to the coming generation the knowledge and lessons of the previous one." It should "*equip* them for life half a century into the future. . . ." It should "*prepare* them to be effective contributors to society's needs, etc.". The verbs are all transitive; there is little hint of the emerging recognition that what Margaret Mead calls a "prefigurative culture" is taking shape in our world.[32] By that she means a specific response to new conditions largely due to the unprecedented rapidity of change. Among these conditions are "the emergence of a world community . . . united by shared knowledge and danger";[33] the scientific revolution which has revolutionized agricultural production and begun to modify the entire planet's ecology; changes in medicine, child-rearing, family life. "Most importantly, these changes have taken place almost simultaneously—within the lifetime of one generation—and the impact of knowledge of the change is world-wide."[34] Dr. Mead goes on to say metaphorically:

> In this sense, then, of having moved into a present for which none of us was prepared by our understanding of the past, our interpretations of ongoing experience or our expectations about the future, all of us who grew up before World War II are pioneers, immigrants in time who have left behind our familiar worlds to live in a new age under conditions that are different from any we have known. Our thinking still binds us to the past—to the world as it existed in our childhood and youth. Born and bred before the electronic revolution, most of us do not realize what it means.[35]

As she sees it, the young generation (particularly the dissident members of that generation) are at home with the electronic revolution, the new technology, the complex immediacy of events; and the solutions or the models proffered to them by the older generation (in their well-meaning effort to perpetuate what they themselves have inherited) have become irrelevant. A new kind of culture is in the making; and, because she believes it to be best represented by the still unborn child, Dr. Mead calls it a "prefigurative" culture. Education in

[30] See Eldridge Cleaver, *Soul On Ice*. New York: McGraw-Hill, Inc., 1968.
[31] The Rand Corporation, December 15, 1970.
[32] Margaret Mead, *Culture and Commitment*, Garden City, New York: Doubleday & Company, Inc., 1970.
[33] Mead, op. cit., p. 69.
[34] Op. cit., p. 71.
[35] Op. cit., p. 74.

such a situation can only be a matter of teaching young people *how* to learn, not what to learn.

It is against this background that the work of contemporary philosophers becomes so relevant: because, whether their orientation is analytical, pragmatic, or existential, they are focusing on conceptions of education which assume learners to be potentially active persons, concerned with "knowing how," organizing their experience, generating new and useful ideas, attempting to make sense. Teaching, says Gilbert Ryle, is opening gates, introducing young people to ways of doing things, enabling them to make independent moves on their own initiative.[36] The teacher, Israel Scheffler points out, is not engaged in conveying or bringing about belief. He is, rather, interested in bringing it about "through the exercise of free rational judgment by the student."[37] The point is to communicate the value of principled thinking and to make the principles fundamental to the disciplines understandable, available for appropriation by young people of diverse abilities. Once they have internalized the norms or the principles fundamental, say, to history, they are in a position to "do" history. This means they are enabled to pattern or to order certain events in the past according to some chronological principle, or in terms of causes and effects; they are enabled to make certain generalizations with respect to what they have learned to treat as evidence. Using rules of procedure developed over time by historians, they are enabled to *explain* what happened, to make sense ("through the exercise of free rational judgment") of an inchoate field.

The focus, in this view of education, is on the growth of cognitive capacity and the considered application of conceptual norms. Pragmatic philosophers, equally concerned with initiative and the mastery of appropriate methods for finding out, might place a greater stress upon problem-solving, ongoing growth, and what John Dewey called the "reconstruction of experience."[38] But they too would be hostile to mere transmission, to the conveyance of "inert ideas,"[39] to the presumption of passivity in the person expected to learn.

The existentialist, in his turn, would lay his stress upon the need for passionate involvement in the action which is knowing. Challenging traditional separations between "subject" and "object" in encounters with the world, challenging indifference and abstractness, the existentialist might be skeptical of what he calls "calculative thinking"[40] according to the scientific model. Reorganizing, however, that knowing is a means of relating to particular situations and that there are multiple modes of relating, he would acknowledge the uses of scientific inquiry even while stressing the dangers of objectifying other human beings or of making a mere entity of the self. Freedom, choice, and authenticity: those would be his watchwords. Education signifies a process of acting reflectively upon one's own freedom; making choices in the changing situations of one's life in response to exigency, to perplexity, to a sense of open possibility; committing oneself to

[36] Gilbert Ryle, *Teaching and Training*, in R. S. Peters, Ed. *The Concept of Education* New York: The Humanities Press, 1967.
[37] Israel Scheffler, *Conditions of Knowledge*. Chicago: Scott, Foresman and Company, 1965, p. 11.
[38] Dewey, op. cit., pp. 89–92.
[39] See Alfred North Whitehead, *The Aims of Education*, New York: Mentor Books, NAL, 1949.
[40] Martin Heidegger, *Discourse on Thinking*, New York: Harper & Row, 1966, p. 50.

what one has chosen; remaining in "good faith." Although the language differs from that used by analytic and pragmatic philosophers, the fundamental concern is akin to theirs. The individual to be educated is conceived to be a free agent capable of exerting himself in order to make sense. His learning is a mode of personal action intentionally undertaken. His education is ineluctably individual; it may be stimulated by others, but it can only proceed if the learner takes the initiative, if—at whatever conceptual level he turns out to be—he learns how to learn.

For all the persistence of "managerial" approaches, then, in certain dimensions of the educational scene, for all the continuing talk of "compensatory" learning, the main thrust is towards diversification and individualization. Those who are conceiving 'education' as informal as well as formal are thinking about what Mario Fantini calls "public schools of choice," [41] meaning education in a self-renewing, multi-faceted system. They are breaking in various ways with the monolithic model, seeking ways of using the resources of the social environment at large. Whether they are demanding "free schools" in storefronts or in farmhouses, community-centered schools, or a type of education which takes place in the various institutions of a locality rather than in a formal school, they have in mind participant, experimental learning, "relevant" in an unprecedented sense. Those who conceive 'education' as initiation into knowledge of the disciplines or the public traditions are also, perforce, beginning to think in terms of individualization. For one thing, they are becoming aware of the need to adjust the "logical" to the "psychological," [42] or to take account of the conceptual capacity of each student learning to engage at particular points with the structure of a discipline. For another, they are becoming aware of the student's own intentions, of the importance of engaging him in the conscious nurture of critical questioning and the conscious appropriation of norms. Those who conceive 'education' as self-instruction obviously are committed to individualization, since they perceive the corporate structures of the society to be nothing more than organized efforts to depersonalize, to force individuals into the system," to "process" them for the system's own ends.

It is impossible to assert that any particular group should determine what *should* be taught. It is equally impossible to develop model curricula, exemplary methodologies, viable statements of predetermined goals. We are living at a time when more and more people perceive our institutions as Yossarian perceived the army in *Catch-22*, when conventions and ancient traditions are being challenged on all sides, when the success and mobility values are being fundamentally questioned, when individuals are seeking a plurality of visions—a plurality of modes of sense-making, a plurality of schools. An Institute of Education, like the R. and D. Centers to be established in the future, ought to come to terms with this diversity and give up the assumption that there is or will ever again be a "public philosophy," or some universal commitment to a set of "national goals." Yet education, broadly and richly conceived, is more important today than it ever was. In the face of crisis, it may yet become the means of enabling individuals to become the authors of themselves.

[41] Mario Fantini, Educational Agenda for the 1970s and Beyond: Public Schools of Choice, *Social Policy*, November/December 1970, p. 24.

[42] See Paul H. Hirst, "The logical and psychological aspects of teaching a subject," in R. S. Peters, *The Concept of Education*, op. cit., p. 44.

EDUCATING FOR THE FUTURE

By JOHN A. MOORE

Long ago Charles Darwin said, "How odd it is that anyone should not see that all observation must be for or against some view if it is to be of any service." ("More Letters of Charles Darwin," volume 1, p. 195.) I will modify this theme for the purposes of the argument to be developed to read:

> How odd it is that anyone should not see that all education must be for some purpose if it is to be of any service. This is Proposition 1.

Proposition 2 is:

> * * * the best help our schools can now give students is an intelligent understanding of the world in which they live.

This question is from "Education for the Age of Science," the 1959 statement by the President's Science Advisory Committee (The White House, Washington, D.C., May 24, 1959).

Proposition 3 is from a speech made last month by the Secretary of Health, Education, and Welfare, Elliot L. Richardson:

> The most basic issue for us today is not what do our institutions of higher education require, but what kind of higher education does our society require. (*Science 170:* 832)

Here I propose to omit the two "highers."

And finally, for Proposition 4, I turn to Philip Handler, President of the National Academy of Sciences, who expressed this opinion last October:

> * * * science remains the most powerful tool the mind of man has yet conceived to alleviate the condition of his fellows. (*Science 170:* 837)

One can hardly label these propositions radical, yet I believe that one can develop from them the revolution in education that must occur. And if this revolution is to be effective, it will be via the only kind that works—evolution.

I will assume that those reading this article have reached the conclusion that America is not working the way it should. Certainly the volume of publications on one or another crisis of society suggests that, if a person is not reading or thinking about a crisis, at least he is writing about one.

The young, most notably, are calling into question contemporary society: the society that can put a few men on the Moon, make it possible for a fifth of mankind to watch the event, and keep multitudes in hell here on Earth. If youth's questioning is to lead to effective action, it will be essential for the young to learn the conditions of

society and some of the constraints on action that are inexorable deductions from the laws of nature. Neither bombast nor bomb will abolish the Second Law of Thermo-dynamics or the Carbon and Nitrogen Cycles. So I will be talking about education and something so elementary as education for survival.

It is exceedingly important what we do here in the United States during the next decade and beyond. Our problems are not unique: we will be addressing ourselves to those of all mankind. The same problems will affect any societies when they attain a certain level of size, affluence, and education. Size, affluence, and education—long considered desirable goals—are themselves the cause of a new family of problems far more serious than any encountered in the past—problems with which we are poorly equipped to deal. We muddled through for generations because, in the absence of a high level of size, affluence, and education, we interfered less with each other and with nature. We are in a new ball game and our heritage of the past ill fits us to deal with the present or the future. Our problem is to discover to what extent the eternal goals of man are wise or practical. In this effort we in the United States will be an experiment for all mankind.

I am optimistic about the outcome of our experiment because I believe we already have the data that will make success theoretically possible. The main problem, as I see it, is whether or not the necessary fraction of us wishes to succeed. That is, can an ethic and behavior of civilized society be developed and adhered to? A more complex world requires more discipline and less doing one's thing; cooperation over selfishness; postponing some present pleasures for future goals; and a heady dose of the Golden Rule.

Planning for the future of society is the single most important thing that we can possibly do, and I propose that this become the primary goal of education. Possibly you believe that this *is* the goal of education now, and I suppose it is in some indirect way, but I would like to make this a most explicit, not implicit, goal.

We plan for the future neither in the schools nor in the marketplace. The mindless way in which we treat the future is appalling. Ask yourself this question: "What are the plans for the future of society?" The United States has, to the best of my knowledge, none. For previous generations they might have been Fifty Acres and a Mule, a Chicken in Every Pot, or Two Cars in Every Garage. The energies of government are marshaled almost exclusively for present crises. The very structure of government puts a premium on doing something *now* for the voters, even though this might lead to future disasters. One cannot attain and maintain high office by the votes and eccolades of the unborn.

So let us suppose that we have reached the decision that what happens to man in the future is so important and so uncertain that we must, without delay, address ourselves to the question. Presumably all vehicles of education would have to be involved, as would all people. Presumably the schools would be the core of these activities. How might we begin to organize them in order to better achieve our goal?

The first thing to do would be to make sure the schools are places where learning is possible. Few adults remember schools as happy and exciting places. Students in the universities today will generally remember their years in the schools as periods of unalleviated boredom—

and for many the universities are no better. "There never were enough good teachers." Of course not: and there never will be enough "good teachers," as understood by the students. But a school should not be a place where the emphasis is on "good teaching." The emphasis should be on good learning. "Good teaching" probably serves the educational needs of the teachers more than the needs of the students. How often have you heard the expression: "I never understood this subject until I began to teach it." Couldn't we let the student in on this secret? Might not we involve him in the educational process in a far more active way? Might not he then learn the subject better; acquire more effectively the social and communicative skills that are essential in adult life; and remember the school years as a happy and stimulating episode in his life?

I think we know the answers to these questions and some few schools now exist that can serve as models for achieving these goals. For this to become the common pattern of education, however, requires that we make up our minds that we really want to do it. That may sound easy but it also involves deciding that we are willing to forego something else. Not so long ago we discovered that on the national level we could not have all the guns and all the butter—the decision was for guns. But you will see, as my argument develops, there are equally important choices that must be made on the *individual* level as well. The education of the young cannot be left solely to the professional teachers in the schools. Family, community, and school working together are essential. An acceptance of this proposition must involve a different way of life for the individual, family, and community.

What is it that a person in the period of life from child to adult must acquire if he is to live effectively as an individual and as a member of society? Here is one possible list:

1. *An understanding of the overall operations of nature:* the roles played by microorganisms, plants, and animals; the notion of a biosphere as life in equilibrium with itself and with nonliving nature.

2. *An understanding of man's place in nature:* his absolute dependence on other life for his own; his past and present effects on nature; how he must reach an equilibrium in the part he plays in the environment.

3. *An understanding of the different groupings that man employs to enhance his survival and betterment:* the family, friends, organizations, community, state, nation, and supranational organizations.

4. *An understanding of the nature of man:* patterns of behavior of the individual; the role of different behaviors for the welfare of the individual and the group to which he belongs; the notion of rights and responsibilities of the individual and the group.

5. *An understanding of his nature as an organism:* his anatomy and physiology and what must be done to maintain both in optimal working conditions.

6. *An understanding of the ages of man:* his infancy, childhood, youth, adulthood, and old age; the special opportunities and problems of each.

7. *An understanding of the variety of opportunities* for one's basic contribution to society—how one "earns his living."

8. *An understanding of the main events in man's past*, not the parade of knave and knight but, for selected moments of history, an understanding of how he lived, his accomplishments, his special problems and their solutions.

9. *An understanding of the world today;* its diversity of human types and societies; the interrelations among them.

10. And finally *a child should have a rich and varied opportunity to explore* the many possibilities for individual development to discover what might be his own.

Apologists for present patterns of education will surely say that the schools now give their students the background for all of this. An arguable point, but if something is important it should be studied explicitly and one should not settle for a parade of peripheral and doubtfully relevant topics that impinge only remotely on the question at hand. There is so much for a child to accomplish if he is to become an effective adult. The schools should help him discover *his* most direct path, keep him on it, and not overburden him with all the trivia that may impede this progress.

How might a curriculum be arranged so that these ten understandings come about? Here is one presented, not in belief that it is "the best," but primarily to explain what I have in mind.

CURRICULUM

Beginning with the very first years in school, a significant portion of the student's time should consist of studies of the real world. This might consume approximately 20 percent of the time during the first few grades and gradually increase until it occupies 60–80 percent of the time in high school. Hopefully such a system will break the current pattern where one *learns* in school and *performs* outside.

We might think of the first twelve years of schooling as consisting of three blocks, each part of a developmental sequence and with a different emphasis.

1. Grades K–4. Here the child begins to learn about his world and especially about the natural world.
2. Grades 5–8. Here the emphasis is on man.
3. Grades 9–12. Here the emphasis is on society.

Grades K–4. Learning About Nature

The K–4 years must develop skills in reading, writing, speaking, simple mathematics, and social relations. To the maximum extent possible, the reading, writing, and mathematics should be related to what the child observes in his community and in nature. Thus, reading becomes a way of learning about what is interesting and important to him. There should be a clear and practical purpose, which is evident to the child, in being able to read, write, and solve simple mathematical problems. The students should also discuss among themselves the problems of getting along with one another. Discussions of model situations: "How would I feel if—?" Not only should the students be made to think about the problems of living with themselves and with each other, but also their behavior towards pets, wild nature, their homes, their school, and their community.

Since much of the work will be done outside of the school building, and in situations where close supervision and personal instruction is necessary, there must be help from others who are not professional teachers, such as the parents of the children, retired individuals, and especially older students. Consider how simple it would be, but of such great educational value if, for at least two afternoons a week, groups of three children and one adult (or an older student) would walk through the community learning to read the names of the streets, the numbers on the buildings, the signs on the stores, and discussing what goes on in the stores and buildings. On other trips, these little groups would visit areas in nature: a seashore with its waves, beach, rocks, tides, dunes; a woodland with trees, streams, shrubs, flowers, life and decay. In all places the children can learn about wind, clouds, rain, erosion, the sun, moon, stars, and the seasons. Participation in such a group would also give love, friendship, emotional support, and experiences in accepted social behavior.

School districts could develop areas for nature studies—educational parks. If new areas are not available, portions of existing parks could be used. There could be study areas with simple laboratory rooms, nature exhibits, nature trails, etc., which could be used by the general public when not required for use by the students.

Museums, zoos, and botanic gardens say they are concerned with both research and education but they should become far more involved in the latter. They should work as equal partners with the schools in deciding what is to be taught and how this can best be done. Museums should become one of the places where children are taught about nature—not merely where dead nature lives behind glass. Possibly a new institution—a combination of museum, zoo, and botanic garden—could best meet the requirements of education.

Grades 5–8. Learning About Man

In these grades there should continue to be a strong emphasis on exploring, reading, writing, speaking, mathematics, and social relations—developed in relation to some of the basic requirements for man's life.

1. *Food.* Why man requires food. The main food and animal crops. Agriculture. Food processing. Nutrition. With this and the following topics, the student should attain a fairly sophisticated understanding—certainly a far better one than characterizes the average American today.

Let us take the example of wheat. How might this topic be developed? The student should find out what happens to wheat in its cycle from seed to bread: the science of soil; the biology of wheat; the way the wheat industry actually works; how wheat is made into flour and finally into bread.

Only in the most exceptional circumstances could the child observe all of this first-hand but, if the community addressed itself to the problem, a reasonable solution could result. For example, it would be my hope that the schools of the future would have gardens as a standard facility. Those responsible for urban schools may cringe at the suggestion but, if it is judged essential for children to have first-hand experiences in raising food crops, the problem could be solved. We

seem to be able to find space for freeways and commercial developments. This is accepted by the community because freeways and commercial developments are "essential." But schools are essential too, and if existing facilities are inadequate, they have to be made adequate. Space might come from a variety of sources: many cities have areas so dilapidated that they are unfit for human habitation—replace some of these with school gardens rather than more habitations: consider using portions of parks; use roofs of school buildings and other public buildings; close the streets around the schools and convert them to pedestrian malls—keeping the pedestrians on the sidewalks and using the center of the streets for gardens.

More exact studies of soils and the growth of wheat could be conducted in the laboratory. Here also one could continue the story: learning how the grain is milled and how bread is made from flour. Some of this could also be observed locally—the commercial milling of grain and of baking.

This one example, wheat, is developed in some detail to give a better idea of the level and method I am suggesting. The most important points are that the student is learning something essential for his life and he is actively involved to a maximum degree. He is not taught about wheat—he *learns* about wheat. What he does in the school garden and in the school laboratory should be supplemented by his exploring a collection of books, articles, films, and tapes all assembled in an easily accessible place for his use.

Much of this can be a group activity—students working together in garden and laboratory and discussing among themselves what they are learning. To the maximum extent possible these activities should be developed and controlled by the students. Supervision by professional teachers, older students, parents, and other adults should be restricted to encouragement, more substantial help if the problems reach a near-frustration level, and special attention to special handicaps: poor reading ability, social problems, deprived background, etc.

Some of the other topics that should be covered, in equal detail, as a student-directed activity are:

2. *Water.* Here there would be no obstacle to a student's learning where his community's water comes from, how it is treated, how it is distributed, how it is used.

3. *Air.*

4. *Houses.* How they are built. Students should build some small structures, make models, and study the construction of buildings in their community. Students would learn the use of tools, how to make plans, and how to read them. Plumbing. Painting.

5. *Clothing.* The origin of fibers. Textiles. Manufacturing. Obvious student activities would include spinning, weaving, and making clothes. Local examples.

6. *Natural resources and technology.* The living and nonliving substances that man takes from the earth and uses in his technology. Here the opportunity for student projects and study of local examples is almost unlimited.

7. *The biology of man.* What we are (our structure) and how our body functions (our physiology); supplemented by studies on other animals. Love and marriage (sex education—to begin *before* puberty). Human behavior. Man's life cycle (birth to death). How to maintain

health. How to maintain health. Doctors and hospitals. Elementary public health.

8. *Other peoples.* Man throughout the world. How he lives, how he organizes his society, his creativity, his environment, what he produces and consumes. Begin to learn a foreign language.

9. *How man regulates his behavior.* Informal rules of social groups. Formal rules (laws). How rules and laws are made and what they are. How they are changed. How people reach decisions. Organizations for regulating behavior: government, courts, police. Rights and responsibilities of individuals and social groups.

10. *Creativity.* What others have done as artists, writers, musicians, leaders (government, business, education), inventors, scientists, architects, physicians, engineers, etc. What the child can do, with much opportunity and encouragement given for his exploration of a rich variety of creative activities.

Up to this point nothing has been said about specific courses of study: there has been no formal course in English, mathematics, history, or any other subject. The center of concern has been some problem and the student has learned these tools (language, math, etc.) to solve the problem. Man's life is a series of problems to be faced and solved and there is no reason why a child's education should not follow a similar pattern. Educators have long known that a child learns more rapidly and more happily if he understands why he should make the effort.

Furthermore, a problem-oriented curriculum allows more freedom and variety of experiences. I would hope that the education that I am proposing simply could not be frozen into a series of activities, each occupying a fifty-minute period at a fixed hour each day—a rigidity that must be truly destructive to little people. A problem, or some portion of it, should be given a block of uninterrupted time.

For example, several weeks might be devoted to a study of water, in all its manifestations. A specific river could be selected (hopefully a local one) for detailed study of it from source to terminus. The study could be started with a consideration of the water cycle and the chemistry of water. Then the slow growth of the river from its tributaries and the effects of its waters (erosion, valleys, etc.). If the example chosen is a typical river, its waters will be used over and over again by the communities that line its banks. Studies could be made of the way each community uses the waters: for domestic purposes, industry, irrigation, waste disposal, or recreation, and the state of the water after these various uses. Such a study, properly done, would involve climatology (clouds, rain, weather), chemistry (nature of water, inorganic substances in water), geology (effects of running water on earth's crust), mathematics (rate of flow, volume, seasonal variation, graphs, rate of use by communities), biology (life in the river, cycles, purifying ability), law (rules for water use, water rights, obligations to communities downstream), industry (how it uses water, responsibilities for proper use), government (who controls use), pollution (origin and control), history (early exploration, use in past), physics (hydroelectric power), agriculture (irrigation), conservation (proper use, responsibilities to future generation), and hopefully a little esthetics (beauty of a stream and the life in it).

Grades 9–12. Learning About Society

In these final years in the schools, the student should make a detailed study of how society operates—its human associations, goals, and techniques. And to a degree not possible in the earlier years, the student should be deeply involved in participating in the activities of society. In the previous eight years he will have learned a great deal about nature, man's relation to it, and the major activities of civilized life. Now he should become deeply concerned with the question of how society will provide the environment of his future. This could be explored through the integrated development of four main topics, which would be the framework for these four years. The student would already have gained considerable experience with each of these topics: now is the time for a more mature and detailed consideration.

A. *Man.* A detailed consideration of man's behavior. His motivations, limitations, rights, and responsibilities. Socially acceptable and socially destructive behavior. The varieties of man's behavior: criminals, hermits, unemployable, alcoholics, drug addicts, fanatics, homosexuals, insane. Mobs, violence, aggression, gangs. Behavior in family. Friends.

B. *Government.* How man attempts to control his welfare and destiny through group action. The operation of our government at the local, county, state, national, and supranational level. Different forms of government. Some of the problems of government: size, poor communication, graft, cronyism, inefficiency, lack of planning, lack of inspiration, money. The importance of leadership. Elections. The vital necessity of active participation of citizens for an effective democracy. Party politics. Lobbies. The rights of individuals and the rights of society.

C. *Law.* What are the principal laws that regulate our behavior? How they are made, changed, enforced. Punishment. Promoting acceptance of laws.

D. *The Future.* The consequences of the growth of man's population and technology in a finite environment. The need to attain an equilibrium, and the revolution in human behavior needed to bring this about. Planning for the present and the future. The nature of "trade-offs." War and peace. Responsibilities to our fellow man and to future generations.

Some of the specific areas of study might be:

1. Government. Investigations of how the local government works. Problems of the community and how they are solved. Detailed studies (which would have to be done largely through reading, films, etc.) of state and national governments, and of the U.N.
2. Taxes.
3. Law. Local courts. Lawyers.
4. Police. Working with them. How they handle local problems. Jails. The problem of police corruption.
5. The life of a city. A study of the sources of water, power, fuel, food. The resulting waste products and their disposal. Balancing benefits and pollution.
6. Transportation. Problems and solutions.
7. Local businesses. How they operate. Corporations. Responsibilities to society.

8. Banks and money market. How they operate. Stock exchange. Responsibilities to society.
9. The U.S. Postal Service.
10. Public and individual health. Physicians. Disease. Treatment. Hospitals.
11. Housing and construction.
12. Labor unions. Responsibility to society.
13. Welfare. Social Security. Unemployment compensation. Retirement.
14. Education.
15. Cultural activities. Museums. Music. Theatre. Libraries.
16. Communication. Press, TV, radio, publishing.
17. Maintaining the environment. Conservation. Pollution.
18. The responsibilities of individuals to themselves, to their fellow man, and to the environment (a project for the 12th year).

The above should occupy approximately half of the student's time, much of it to be spent outside of the schools. Much cooperation would be needed by local business and government. Hopefully every student would do some work in about four of these areas each year, to learn how society really works, not the way it is supposed to work. These experiences could help the students in their decisions about careers and, quite possibly, lead them to recognize that there are many important tasks to be done in society and that a dedicated worker in any is to be respected. Possibly one or more summers could be spent working on farms, construction work, etc.

For the first time something will be said about formal courses. During these last four years a student should have an opportunity to explore in depth areas of knowledge or sorts of activities that will satisfy his intellect, broaden his horizons, and prepare him for his life. Presumably this can be done in something that one could identify as a "course" though I would hope it would have little resemblance to many of the courses now offered a student. If a student has gone through the learning experience I have been describing, I would hope that he would be able to cope with new knowledge at a truly sophisticated level. (I am assuming that he would have enjoyed his schooling—and that would make all the difference in the world.)

This is the end of my specific suggestions for a new type of school, a new type of curriculum and, of greater importance, a new type of student. The proposal is radically different from what we do now, which I believe is necessary because:

1. Existing programs, which have traditionally served the children from middle-class homes, are being rejected by increasing proportions of these children and their parents.
2. The rising expectations of children from underprivileged homes and their parents are not being met in the schools today.
3. If we define an uneducated person as one incapable of dealing effectively with his world, an increasing proportion of our young leave school uneducated.

Today, and to an increasing degree in the future, the life of an uneducated person is doomed to be personally frustrating and socially destructive. The complexities facing life now require not only far more education, but far more relevant education for these goals:

1. To enhance one's inner resources, which will be far more important for life in an increasingly crowded, tense, and complex environment, and

2. To develop the social and technological skills that will be necessary for even a modicum of personal and community serenity in a more-demanding future.

With the education of today far too small a percentage of graduating students are able to deal effectively with a highly sophisticated technological civilization. Far too many will become passive, or cared-for, bystanders who do not or cannot participate meaningfully in the operations of society.

But the schools cannot do this alone. The education of the young must become the general responsibility of the adult generation. It is no longer feasible to allocate the responsibility of education almost entirely to the teaching profession: a child can only be educated by his whole environment. This fact has become painfully clear for many of the children of the inner city: where home and community support is lacking, the schools cannot ensure that a child will reach his full potential. Parents of the school children and other adults with some time to spare (childless or retired) will be needed to help with work in the classroom and elsewhere. Also the decrease in the work-week should make it possible for working people to contribute. Such a program would, of course, have its adult education aspects: the nonprofessional teachers would have to know nearly as much as the pros. Such groups could concern themselves not only with the education of their children, but also educating themselves: child care, health, community affairs, book clubs, crafts, etc. One could build a group of informed individuals that might become effective spokesmen for education, conservation, control of pollution, etc. Hopefully these people would have their lives enriched not only by participating in a vital enterprise but also by obtaining some intellectual stimulation.

We started with four propositions.

One of these was that the schools should give their students an intelligent understanding of the world in which they live. This is the central concern of the program that I have proposed. The goal is not learning for the sake of learning but learning for the sake of survival.

Another proposition, modified from Darwin, was that all education must be for some purpose. The topics that I have suggested deal explicitly with the purpose of stimulating the student to learn about his world. Formal courses have been replaced with a problem-oriented approach. Mathematics becomes a way of understanding some aspect of the problem; effective reading, writing, and speaking become tools of learning and communicating about the problems; the necessary science and technology are mastered for further understanding. Sociology, economics, psychology, and government have clear and obvious roles. But what about history and the humanities? Both have a vital role to play. History can easily become problem oriented: one could marshal examples of man's previous attempts to deal with the problem at hand. Think of the rich variety of our past experiences with the good and evil of power; the relations of different peoples; the usual failure of war and violence to provide satisfactory solutions; the various attempts to secure justice; the progress of our inventions; the search

for a safer and more meaningful life. The humanities can, better than any other discipline, put all into acceptable perspective. There are no nonhumanistic reasons to prefer love over hate, peace over war, generosity over greed, conservation over destruction, justice over oppression. The list of individual and national priorities that we use for our life and our future must be based on our humanity, not on our science. The name of the game is man.

The third proposition was that education should be directed to the needs of society. I have suggested a program that conceivably could serve these ends.

The plan that I have proposed is so different from existing education that only a revolution could transform one into the other. It would demand an enormous national effort, an effort commensurate with the magnitude of the problem. One would like to think that it could be done by government but, in this case, I believe other associations of men might be more effective.

So now we come to Philip Handler's proposition that science is the most powerful tool the mind of man has yet conceived to alleviate the condition of his fellows. Should we use the methods and men of science to help in educational reform?

And now I really get to the point: Could some large and broadly representative group do the job? Any new educational program that will be truly effective today, and give some hope for the future, must be constructed by individuals who are experts in the natural sciences, social sciences, and technology. The staff of the National Institute of Education must have the expertise required for the creation of such a program.

The job has to be done—quite possibly not in the specific form that I have proposed but one of similar scope. It will be extremely difficult to succeed but vastly more destructive to fail.

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